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September 5, 2000

RZ2.R05705.01.ID.073

Mr. Brian Freeman
U.S. Environmental Protection Agency
Region 5 DE-9J
77 West Jackson Boulevard
Chicago, Illinois 60604

Reference: EPA Contract No. 68-W-99-017; Work Assignment No. R05705; Multi-Site Sampling and Analysis Support; Sheffield Steel, EPA ID No. ILD151759248; Joliet, Illinois; Draft Field Sampling Report; Task 05 Deliverable

Dear Mr. Freeman:

Please find enclosed TechLaw's Draft Field Sampling Report for sampling activities that occurred on August 23, 2000 at the Sheffield Steel facility in Joliet, Illinois. At the request of Mr. Kuefler, this report is being submitted in draft form for preliminary review by U.S. EPA. At this time, TechLaw has not received the corresponding analytical data from the CRL, but will include these data in the Final Field Sampling Report.

If you have any questions, please contact me or Mr. Terry Uecker, the TechLaw Work Assignment Manager, at (312) 345-8974.

Sincerely,

John Koehnen

PDF @ Techlaw Inc. com

John Koehnen
Regional Manager

Enclosure

cc: F. Norling, U.S. EPA, Region 5 (w/o attachment)
P. Kuefler, U.S. EPA Region 5 TA
T. Uecker, TechLaw WAM

Chicago Central Files
W. Jordan, Central Files

DRAFT FIELD SAMPLING REPORT
SHEFFIELD STEEL
JOLIET, ILLINOIS
EPA ID No. ILD151759248

Submitted to:

Mr. Brian Freeman
U.S. Environmental Protection Agency
Region 5 DE-9J
77 West Jackson Boulevard
Chicago, Illinois 60604

Submitted by:

TechLaw, Inc.
20 North Wacker Drive
Suite 1260
Chicago, Illinois 60606

EPA Work Assignment No.	**R05705**
Contract No.	**68-W-99-017**
EPA WAM	**Brian Freeman**
Telephone No.	**(312) 886-2720**
EPA Technical Advisor	**Patrick Kuefler**
Telephone No.	**(312) 353-6268**
TechLaw WAM	**Terry Uecker**
Telephone No.	**(312) 345-8974**

September 5, 2000

DRAFT FIELD SAMPLING REPORT
SHEFFIELD STEEL
JOLIET, ILLINOIS
EPA ID No. ILD151759248

SUMMARY OF FIELD ACTIVITIES

On August 23, 2000, a TechLaw, Inc. (TechLaw) field team conducted sampling at the Sheffield Steel (Sheffield) facility in Joliet, Illinois. The TechLaw field team was comprised of Mr. Terry Uecker and Ms. Kristi Pawski. The split sampling was conducted at the request of Mr. Brian Freeman, the U.S. EPA Region 5 Work Assignment Manager.

The purpose of this sampling event was to determine whether a release of used oil constituents and RCRA metals occurred due to potentially improper disposal of used oil and solid and hazardous waste at the facility. Samples were collected by members of the TechLaw team and were split with personnel from the Sheffield contractor, Huff and Huff, Inc. In addition to the TechLaw field team, the following personnel were present at the site during TechLaw's sampling visit:

Mr. Patrick Kuefler - Project Technical Advisor, U.S. Environmental Protection Agency
Mr. Frank Di Falco - Operations Manager, Sheffield Steel
Mr. Thomas Fredette - Director of Human Resources, Sheffield Steel
Ms. Sarah Monette - Huff and Huff, Inc.

During a 1999 U.S. EPA inspection, open drums, areas of stained soil, and 1- and 5-gallon containers of unknown content were observed in several areas of the facility. Three of these areas were targeted for this sampling event; the Oil Room/Gear Box, the Concrete Pad/Oil Drum Accumulation Area, and the Mill Scale Cooling Tank. When the TechLaw team arrived on August 23, 2000, soil at the Oil Room/Gear Box and the Concrete Pad/Oil Drum Accumulation Area had been excavated. The large debris pile on the Concrete Pad had also been removed, and according to Mr. Di Falco, the concrete was powerwashed after the removal effort. Based on these changes at the facility, fewer samples were collected than originally anticipated. A total of eight samples were collected and analyzed for RCRA metals. Seven of those samples were also analyzed for semivolatile organic compounds (SVOCs) and volatile organic compounds (VOCs). All samples were analyzed by the U.S. EPA Central Regional Laboratory (CRL) in Chicago, Illinois.

A Facility Map and Sampling Location Maps are presented in Appendix A. A Photographic Log is provided in Appendix B and a copy of the Techlaw team's field log is included in Appendix C.

The TechLaw team arrived at the Sheffield facility at 0830 and met Mr. Patrick Kuefler. The group proceeded to the Sheffield administrative office, where they met with Sheffield

representatives Frank Di Falco and Tom Fredette, and the facility consultant, Sarah Monette from Huff and Huff, Inc. The TechLaw team and Mr. Kuefler described the areas to be sampled and the constituents for which the samples would be analyzed. Mr. Kuefler gave Mr. Di Falco a copy of the TechLaw sampling and analysis plan (SAP) and the meeting concluded.

Soil Sample Collection

Mr. Kuefler, Mr. Uecker, Ms. Pawski, Mr. Di Falco, Mr. Fredette, and Ms. Monette began sampling at the Mill Scale Cooling Tank. The Mill Scale Cooling Tank is located east of the main facility, approximately 100 feet west of the DesPlaines River. The tank is used as a settling tank to remove mill scale and oil from water used in facility operations. The mill scale settles to the bottom of the tank, then is scooped out, collected in drums, and disposed of off-site. Three samples were collected at this location (S01 - S03). In all locations, VOC samples were collected first, followed by SVOC and metals samples. VOC samples were collected using EnCore samplers. All VOCs were collected as grab samples, each consisting of three EnCore samplers. All SVOC and metals samples were composites consisting of three aliquots of soil, collected approximately 1 to 3 feet apart. These aliquots were then placed into a plastic bowl and homogenized. The soil in the bowl was then placed into two samples jars; one for metals analysis and one for SVOC analysis.

Sample S01 was collected from an area of stained soil approximately 20 square feet in size, located approximately 30-40 feet west and slightly south of the cooling tank. The VOC sample was collected with EnCore samplers. The SVOC/metals sample was a composite consisting of three soil aliquots collected from within the area of stained soil, each approximately 3 feet apart. Sample S02 was collected from the northern edge of the stained soil, from the area under and around the hose/drain connection. Sample S03 was collected from a small area of soil next to a drain, immediately south of the cooling tank, which was stained black and had a slight oily smell. A small amount of water present beneath the drain in this area also had a visible oily sheen. Additional information regarding sampling locations and QA/QC samples are provided in Table 1 and sample location maps are provided in Appendix A.

The Oil Room/Gear Box, adjacent to Building 3, was the site of soil excavation following the 1999 U.S. EPA inspection. At the time of the inspection, an unused gear box stood outside the north side of Building 3. Oils remaining in the gear box had overflowed during a 1999 storm event, and had stained the adjacent soil. Neither the gear box nor the stained soil were present during the August, 2000 visit. Ms. Monette stated that a 6 foot by 10 foot area of soil was excavated to a depth of 3 or 4 feet, and that the gear box was disposed of. The area of excavated soil was then backfilled with gravel. Samples were collected from soil around the edges of the excavated area. In a similar manner as at the Mill Scale Cooling Tank, VOC samples were collected first, followed by SVOC/metals samples.

Three soil samples were collected at this location (S04 - S06). Sample S04 was collected from

along the west wall of Building 3; Sample S05 was collected from the western edge of the excavated area; and Sample S06 was collected along the north wall of Building 3. Gravel was encountered just beneath the surface soil at location S04. In order to collect the sample, a plastic spoon was used to gently push soil into the EnCore sampler. Additional information regarding sample locations and QA/QC samples are provided in Table 1 and sample location maps are provided in Appendix A.

The Concrete Pad/Oil Drum Accumulation Area was another site of soil excavation and debris removal following the 1999 U.S. EPA inspection. At the time of the 1999 inspection, the south end of the concrete pad was used as an accumulation area for staging drums that contained non-hazardous waste grease and oil-contaminated absorbent pigs before the drums were disposed of off-site. Drums were observed on their sides leaking grease and oil at that time. Grease and oil staining were also observed on the concrete pad and the adjacent ground surface to the east. The concrete pad was also the location of a large debris pile containing refractory brick.

According to Ms. Monette, the debris pile was removed and disposed of off-site, and the concrete pad was powerwashed. A 4 foot by 6 foot area of the ground surface to the east of the pad was excavated to a depth of approximately 4 feet. The excavation was backfilled with gravel and re-graded. The ground next to the utility pole was hand excavated due to the presence of electrical cable. Field screening was conducted after the excavation using a photoionization device (PID) and no contamination was noted.

Two samples were collected at this location (S07 and S08). Both samples were collected near the fence, along the eastern edge of the excavation. Sample S07 was analyzed for VOCs, SVOCs and metals. The VOC sample was collected first using EnCore samplers, followed by the SVOC/metals sample. Gravel was encoutered just beneath the surface soil at this location, so a plastic spoon was used to gently push soil into the EnCore sampler. Sample S08 was also collected along the fence, approximately 30-40 feet north of Sample S07. Sample S08 was only analyzed for metals. When Mr. Kuefler expressed interest in sampling at location S08, Mr. Di Falco asked that the sampling be delayed until he had a chance to speak with Sheffield Steel's lawyer. Ms. Monette and Mr. Fredette left the sampling site to call Sheffield Steel's lawyer. They returned 30 minutes later and conferred with Mr. Di Falco. Mr. Di Falco allowed the sample to be collected, but stated that he "agreed under protest" and that he would dispute the sampling results. Mr. Di Falco disputes the location of Sample S08 due to its proximity to the fence and the railroad tracks beyond the fence, which are not located on Sheffield Steel property. However, based on observations made in the field, drainage appeared to be in an onsite to offsite direction, and any offsite impacts would not likely impact this area.

Additional information regarding sample locations and QA/QC samples are provided in Table 1 and sample location maps are provided in Appendix A.

APPENDIX A

SHEFFIELD STEEL - FACILITY AND SAMPLE LOCATION MAPS

Table 1
Sample Locations and QA/QC Sample Information

Sample Number[1]	Sample Location	QA/QC Sample Information
2000RC05S01	Mill Scale Cooling Tank	MS/MSD
2000RC05D01	Mill Scale Cooling Tank	Duplicate (metals and SVOCs)
2000RC05S02	Mill Scale Cooling Tank	
2000RC05D02	Mill Scale Cooling Tank	Duplicate (VOCs)
2000RC05S03	Mill Scale Cooling Tank	
2000RC05S04	Oil Drum/Gear Box	
2000RC05S05	Oil Drum/Gear Box	
2000RC05S06	Oil Drum/Gear Box	
2000RC05S07	Concrete Pad/Oil Drum Accumulation Area	
2000RC05S08[2]	Concrete Pad/Oil Drum Accumulation Area	

[1] Sample location descriptions in the report text refer to the last three characters in the sample number. For example, sample number "2000RC05S01" is identified in the report text as "S01".

[2] Sample S08 was analyzed for metals only.

APPENDIX B

SHEFFIELD STEEL - PHOTOGRAPHIC LOG

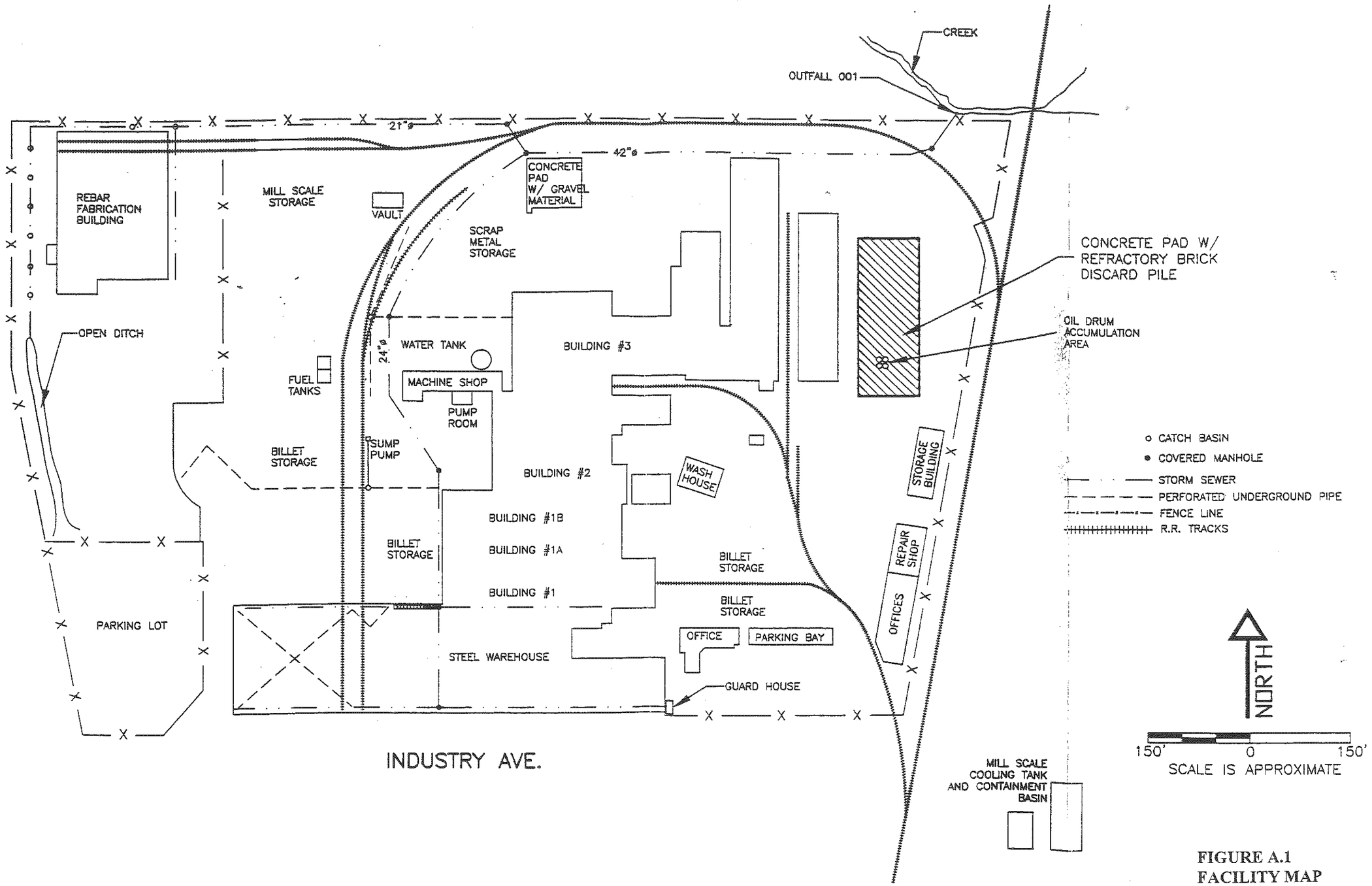


FIGURE A.1
FACILITY MAP

CADFILE:SWPPP–2

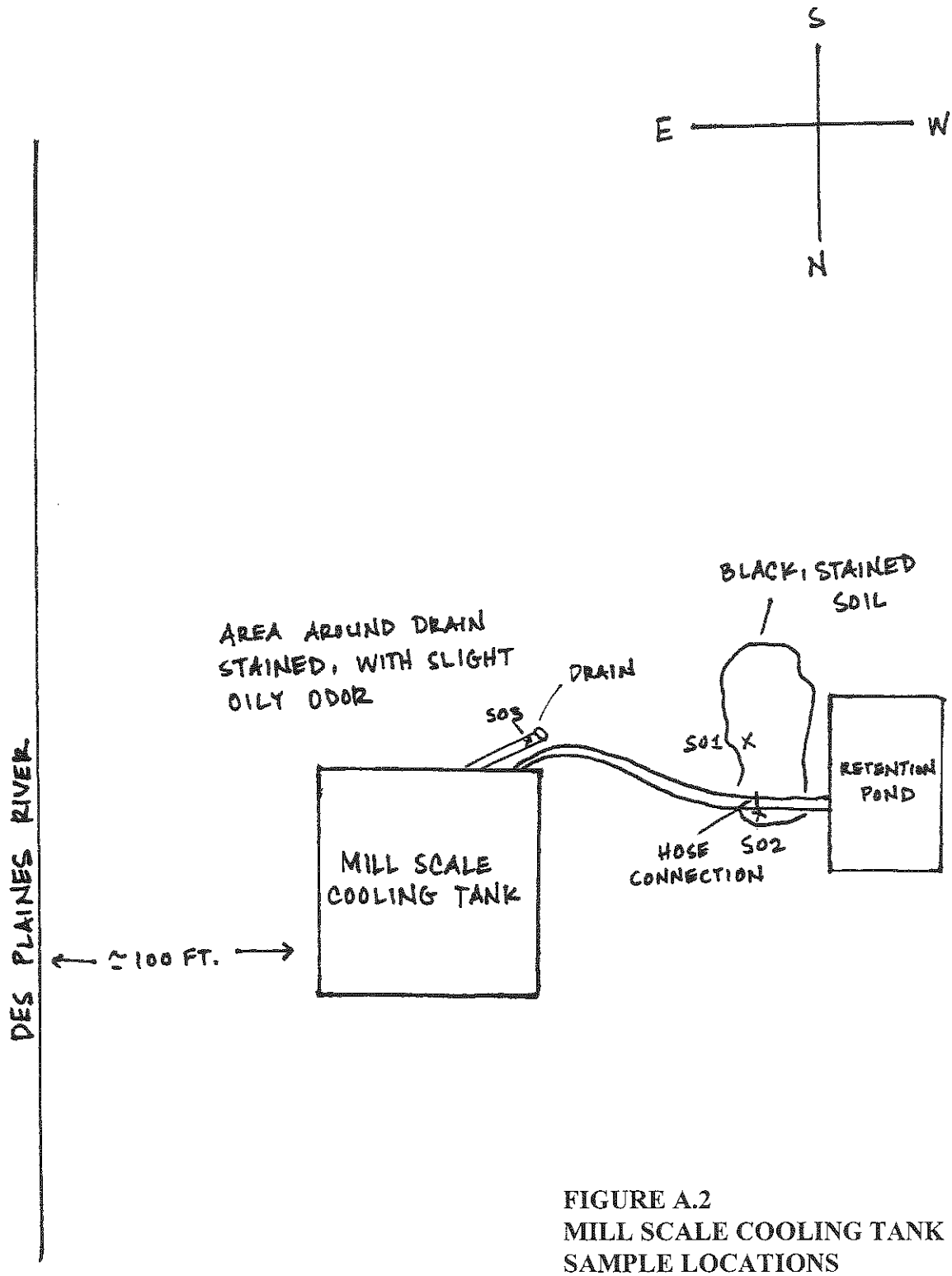


FIGURE A.2
MILL SCALE COOLING TANK
SAMPLE LOCATIONS

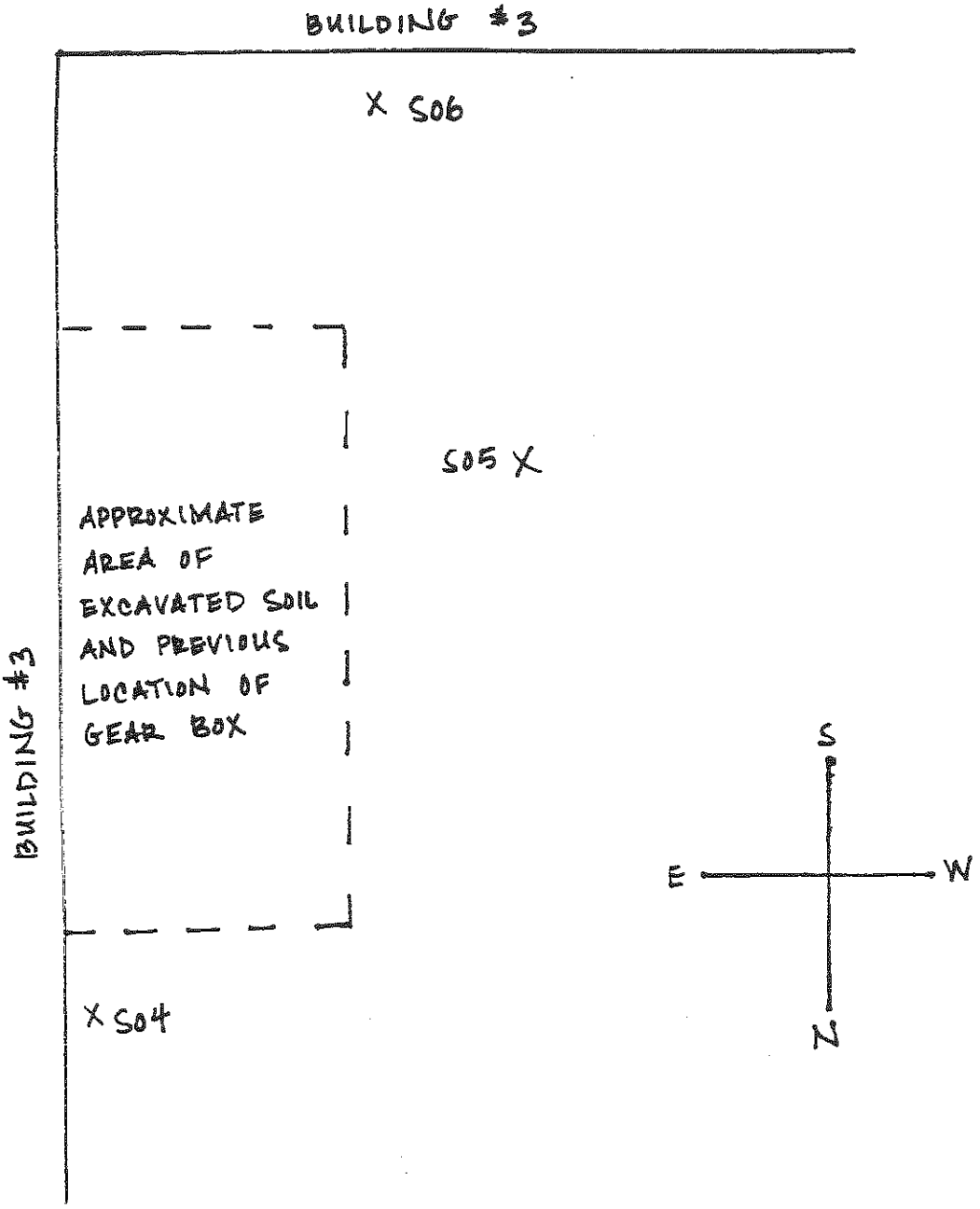


FIGURE A.3
OIL ROOM/GEAR BOX
SAMPLE LOCATIONS

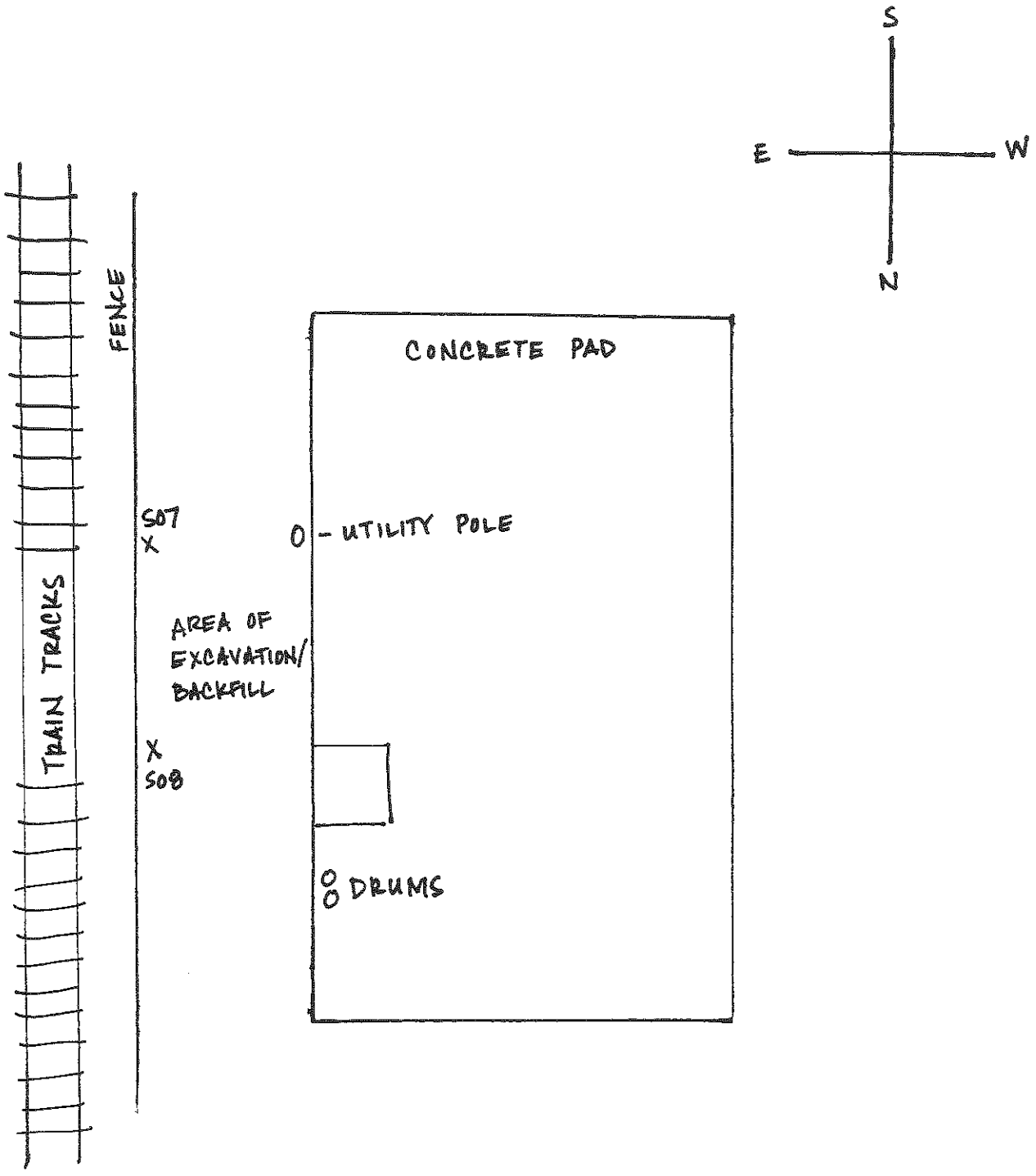


FIGURE A.4
CONCRETE PAD/OIL DRUM
ACCUMULATION AREA
SAMPLE LOCATIONS

Photograph No. 1
Direction: SE

Date: 8/23/00
Time: 0902

Note: Overall view of the Mill Scale Cooling Tank sampling area. Note the pipe leading to the drain on the far left. The DesPlaines River is located through the trees, approximately 100 feet to the east.

Photograph No. 2
Direction: S

Date: 8/23/00
Time: 0903

Note: View of the Mill Scale Cooling Tank sampling area, looking south. Note the gravel over areas of stained soil.

Photograph No. 3
Direction: W

Date: 8/23/00
Time: 0904

Note: View of the Mill Scale Cooling Tank sampling area, looking west. Note the blackened soils next to and behind the hose connection.

Photograph No. 4
Direction: NW

Date: 8/23/00
Time: 0921

Note: View of the collection of Sample S01 at the Mill Scale Cooling Tank. Note the blackened soils next to and beneath the hose connection.

Photograph No. 5
Direction: S (Down)

Date: 8/23/00
Time: 0934

Note: Collection of Sample S01 (SVOCs/metals) at the Mill Scale Cooling Tank. The sample is a composite consisting of three grab samples located within the area of blackened soil.

Photograph No. 6
Direction: NW

Date: 8/23/00
Time: 0955

Note: View of S01 sampling area at the Mill Scale Cooling Tank. Note the three locations from which the composite SVOC/ metals sample was collected.

Photograph No. 7
Direction: N

Date: 8/23/00
Time: 1000

Note: Collection of Sample S02 (VOCs) at the Mill Scale Cooling Tank. The sample was collected from the area around and beneath the hose/drain connection.

Photograph No. 8
Direction: NW

Date: 8/23/00
Time: 1004

Note: Collection of Sample S03 (SVOCs/metals) at the Mill Scale Cooling Tank. The sample was a composite comprised of three grab samples collected around and beneath the hose/drain connection.

Photograph No. 9
Direction: E

Date: 8/23/00
Time: 1016

Note: Collection of Sample S03 at the Mill Scale Cooling Tank. Note the DesPlaines River, visible through the trees. A slight odor was detected during the sample collection, and a visible sheen was noticed on the small amount of water beneath the drain.

Photograph No. 10
Direction: SE

Date: 8/23/00
Time: 1053

Note: View of the previous location of the gear box, outside Building #3 at the Oil Room/Gear Box. The soil from this area was excavated following the 1999 U.S. EPA inspection, and the gear box was disposed of off-site.

Photograph No. 11
Direction: S

Date: 8/23/00
Time: 1058

Note: Collection of Sample S04 (VOCs) at the Oil Room/Gear Box. Gravel was encountered immediately below the soil surface, so EnCore samplers were filled by gently pushing soil into the sampler with a plastic spoon.

Photograph No. 12
Direction: S

Date: 8/23/00
Time: 1124

Note: Collection of Sample S05 (SVOCs/metals) at the Oil Room/Gear Box, from the western edge of the soil excavation.

Photograph No. 13
Direction: E

Date: 8/23/00
Time: 1137

Note: Collection of Sample S06 at the Oil Room/Gear Box. This sample was collected where the west and north walls of Building #3 meet, along the approximate south edge of the soil excavation area.

Photograph No. 14
Direction: E

Date: 8/23/00
Time: 1149

Note: Overview of the Concrete Pad/Oil Drum Accumulation Area. This was previously the location of the debris pile containing refractory brick and the storage area for drums containing grease and used oil.

Photograph No. 15
Direction: S

Date: 8/23/00
Time: 1149

Note: View of the Concrete Pad/Oil Drum Accumulation Area, facing south.

Photograph No. 16
Direction: E

Date: 8/23/00
Time: 1200

Note: Collection of Sample S07 at the Concrete Pad/Oil Drum Accumulation Area. Gravel was encountered beneath the soil surface, so a plastic spoon was used to gently backfill the EnCore sampler. Sample S07 was collected on the eastern edge of the excavated and backfilled area next to the Concrete Pad.

Photograph No. 17
Direction: E (Down)

Date: 8/23/00
Time: 1302

Note: Collection of Sample S08 at the Concrete Pad/Oil Drum Accumulation Area. This sample will only be analyzed for RCRA metals. The sample is a composite comprised of three grab samples collected from within the washout area.

APPENDIX C

SHEFFIELD STEEL - FIELD LOGBOOK

IF FOUND PLEASE RETURN TO:

NAME _____

COMPANY _____

STREET _____

CITY _____ STATE ____ ZIP ____

PHONE _____ _____

JOB BOOK

FROM PENINSULAR PUBLISHING

PROJECT NAME SHEFFIELD STEEL

PROJECT NUMBER 2000RC05

CREW T. UECKER, K. PAWSKI

DATE 8/23/00 BOOK # 1 OF ____

WEATHER HOT & HUMID, TEMP. IN 80s,
OVERCAST IN EARLY A.M. BECOMING
SUNNY BY LATE MORNING.

FIELD BOOK
16 PAGE
8 LEAVES
50% RAG

CURVE FORMULAS

$T = R \tan \frac{1}{2} I$	$R = T \cot. \frac{1}{2} I$	Chord def. $= \frac{\text{chord}^2}{R}$
$T = \frac{50 \tan \frac{1}{2} I}{\text{Sin. } \frac{1}{2} D}$	$R = \frac{50}{\text{Sin. } \frac{1}{2} D}$	No. chords $= \frac{I}{D}$
$\text{Sin. } \frac{1}{2} D = \frac{50}{R}$	$E = R \text{ ex. sec } \frac{1}{2} I$	
$\text{Sin. } \frac{1}{2} D = \frac{50 \tan \frac{1}{2} I}{T}$	$E = T \tan \frac{1}{4} I$	Tan. def. $= \frac{1}{2}$ chord def.

The square of any distance, divided by twice the radius, will equal the distance from tangent to curve, very nearly.

To find angle for a given distance and deflection.

Rule 1. Multiply the given distance by .01745 (def. for 1° for 1 ft.) and divide given deflection by the product.

Rule 2. Multiply given deflection by 57.3, and divide the product by the given distance.

To find deflection for a given angle and distance. Multiply the angle by .01745, and the product by the distance.

GENERAL DATA

RIGHT ANGLE TRIANGLES. Square the altitude, divide by twice the base. Add quotient to base for hypotenuse.

Given Base 100, Alt. $10.10^2 \div 200 = .5$. $100 + .5 = 100.5$ hyp.

Given Hyp. 100, Alt. $25.25^2 \div 200 = 3.125$: $100 - 3.125 = 96.875 =$ Base.

Error in first example, .002; in last, .045.

To find Tons of Rail in one mile of track: multiply weight per yard by 11, and divide by 7.

LEVELING. The correction for curvature and refraction, in feet and decimals of feet is equal to $0.574\,d^2$, where d is the distance in miles. The correction for curvature alone is closely, $\frac{2}{3}d^2$. The combined correction is negative.

PROBABLE ERROR. If d_1, d_2, d_3, etc. are the discrepancies of various results from the mean, and if Σd^2 = the sum of the squares of these differences and n = the number of observations, then the probable error of the mean $= \pm 0.6745 \sqrt{\frac{\Sigma d^2}{n(n-1)}}$

MINUTES IN DECIMALS OF A DEGREE

1′	.0167	11′	.1833	21′	.3500	31′	.5167	41′	.6833	51′	.8500
2	.0333	12	.2000	22	.3667	32	.5333	42	.7000	52	.8667
3	.0500	13	.2167	23	.3833	33	.5500	43	.7167	53	.8833
4	.0667	14	.2333	24	.4000	34	.5667	44	.7333	54	.9000
5	.0833	15	.2500	25	.4167	35	.5833	45	.7500	55	.9167
6	.1000	16	.2667	26	.4333	36	.6000	46	.7667	56	.9333
7	.1167	17	.2833	27	.4500	37	.6167	47	.7833	57	.9500
8	.1333	18	.3000	28	.4667	38	.6333	48	.8000	58	.9667
9	.1500	19	.3167	29	.4833	39	.6500	49	.8167	59	.9833
10	.1667	20	.3333	30	.5000	40	.6667	50	.8333	60	1.0000

INCHES IN DECIMALS OF A FOOT

1-16	3-32	1/8	3-16	1/4	5-16	3/8	7/16	1/2	9/16	5/8	11/16
.0052	.0078	.0104	.0156	.0208	.0260	.0313	.0417	.0521	.0625	.0729	
1	2	3	4	5	6	7	8	9	10	11	
.0833	.1667	.2500	.3333	.4167	.5000	.5833	.6667	.7500	.8333	.9167	

8/23/00 (1)

8:45 Presampling mtg at Sheffield office. Representatives present were -
- USEPA - Pat Kuefler
- TechLaw - Terry Uecker
- TechLaw - Kristi Pawski
- Huff & Huff - Sarah Monette
- Sheffield - Tom Fredette
- Sheffield - Frank DiFalco

Discussed areas to be sampled. DiFalco told us that the Oil Storage Area had been cleaned up. Sarah and DiFalco left to call their lawyer, then returned and said they were ready to go. Left for first site.

9:00 - Arrived at Cooling Water Tank and surveyed site.

All samples will be split with Sheffield Contractor (Huff & Huff). They have their own soil jars - TL will provide EnCore samplers.

Weather overcast at arrival, becoming sunnier (but still slightly hazy) as the morning ends. Temperature in 80s, humid.

KAP

(2) 8/23/00

Time: 0902 Photographer: T. Uecker
Direction: S Location: Cooling Water Tank
PHOTO #1
NOTES: Overall site picture. Note pipe leading to drain on far left of photo. (1 of 3)

PHOTO #2
Time: 0903 8/23 KAP Photographer: T. Uecker
Direction: SSW/E Location: Cooling Water Tank
Note: Photo 2 of 3. Note gravel over blackened soils.

PHOTO #3
Time 0904 Photographer: T. Uecker
Direction: SE Location: Cooling Water Tank
Note: Note blackened soils next to and behind hose connection.

09:21 Began collection of VOC samples. Sample #S01 collected with EnCore sampler. 8/23/00 KAP
PHOTO #4 Photographer K. Pawski
Time 0922 Location: Cooling Water Tank
Direction: N
Note: Collection of Sample #S01.

KAP

8/23/00 (3)

Huff & Huff rep. again clarified with T.G. that we will run a full scan on samples, rather than analyzing for specific constituents in the lab.
0934 - Began collection of Sample # S021 KAP 8/23/00 metals
PHOTO #5
Time: 0934 Photographer: K. Pawski
Direction: SE Location: CWT
Note: Sample S021, KAP 8/23/00 metals which will be analyzed for metals. Sample is a composite collected from 3 areas of the blackened soil area.
0952 - collection of duplicate/spike sample at S02 for VOCs and sample S02-VOC.
PHOTO #6
Time: 0955 Photographer: K. Pawski
Direction: N Location: CWT
Note: View of S01 sampling area. Note areas from which composite sample was collected.
PHOTO #7
Time: 1000 Location: ~~EAST~~ KAP 8/23/00 CWT
Direction: N Photographer: K. Pawski
Note: Collection of Sample # S02-VOC.

KAP

PHOTO #8
Time: 1004 Photographer: K. Pawski
Direction: N Location: CWT
Note: Collection of Sample #S02 - metals
1013 - Began collection of Sample #S03. Ground around S03 is gravel, with sizeable pieces (1-2") of rock.

PHOTO #9
Time: 1016 KAP 8/23/00 Photographer: K. Pawski
Direction: SE Location: CWT
Note: Collection of Sample #S03 - VOCs. Note the river, visible through the trees. There is a slight odor of oil around S03, and a visible sheen on the little amount of water beneath the drain.

1035 - Arrived at Concrete Pad/Oil Drum Area. Site is cleaned up. Gravel area was excavated and graded to allow trucks in. Excavated to approx. 4 ft. 6' x 4' area. Next to electric cable, ground was hand excavated. Field screening (PID) was done after excavation. Concrete pad was powerwashed.

KAP

1042 - Arrived at Gear Box/Oil Room Excavated soil to 3-4 ft. along building & out approx. 10 ft. Area was then backfilled with gravel. According to Sarah & Frank, gear box was disposed of.

PHOTO #10
Time: 1053 Photographer: K. Pawski
Direction: SE Location: Gear Box / Oil Room
Note: View of ~~outstar~~ KAP 8/23/00 previous location of gear box, which was removed during excavation.

1056 - Began Collection of Sample #S04 Along NW corner of bldg.

PHOTO #11
Time: 1058 Photographer: K. Pawski
Direction: S Location: Gear BOX/Oil Room
Note: Collection of Sample #S04 - VOCs. Gravel was encountered immediately below the soil surface, so EnCore samplers were filled ~~with dirt~~ 8/23/00 KAP by gently pushing soil into sampler with a plastic spoon.

KAP

1106 - Collection of SD4 - metals. Sample is a composite of 3 areas, each approx. 3 inches apart.

1113 - Collection of Sample #S05 - VOCs. Sample collected approx. 10 ft. out from bldg.
PHOTO #12 KAP 8/23/00
Time: 1114/1124 Photographer: K. Pawski
Direction: S Location: Gear BOX/Oil Room
Note: Collection of Sample #S05 - metals
No gravel encountered during collection of VOC samples - EnCores were filled using traditional method.
1123 - Collection of S05 - metals/BNAs

1133 - Began collection of Sample S06 in corner (outside) of bld.

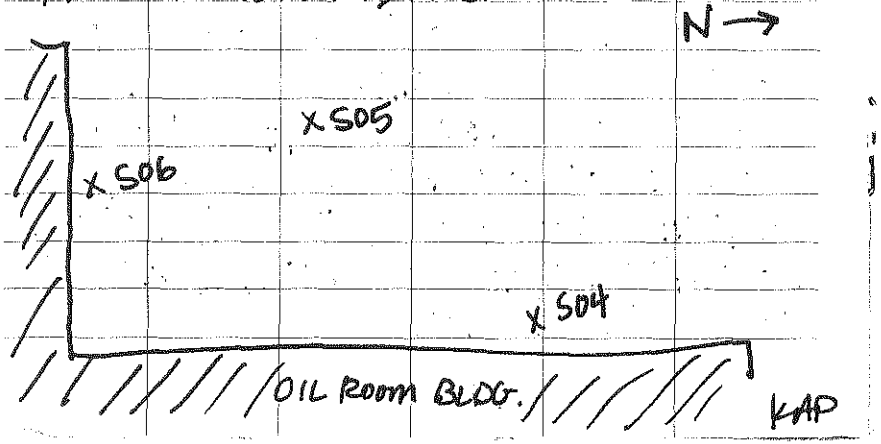


PHOTO #13
Time: 1137 Photographer: K. Pawski
Direction: E Location: Gear BOX/Oil Room
Note: Collection of Sample #S06 - VOCs.

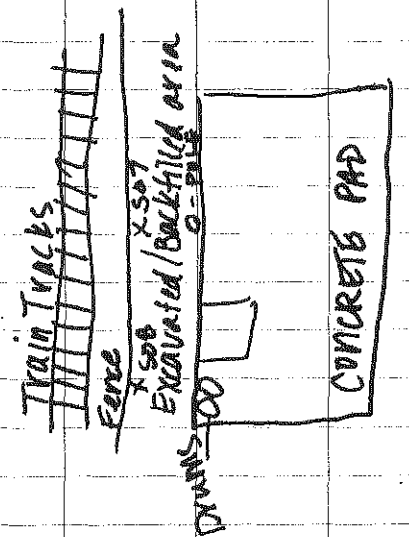
1140 - Began collection of S06 - metals/BNAs. Sample is a composite from 3 areas, each approx. 1-2 3ft. apart. KAP 8/23/00

1145 - Returned to Oil Drum Accumulation Area.

PHOTO #14
Time: 1149 Photographer: K. Pawski
Direction: E Location: Oil Drum Accum. Area
Note: Area of previous refractory brick accumulation area. Also used previously to store used oil drums.
PHOTO #15
Time: 1149 Photographer: K. Pawski
Direction: S Location: Oil Drum Accumulation Area.
Note: Same as previous photo, from different direction.

KAP

1155 - Began collection of Sample # S07.
PHOTO #16
Time: 1200 Photographer: K. Pawski
Direction: E Location: Oil Drum Acc. Area
Note: Collection of S07 - VOCs. Gravel was encountered beneath soil surface, so a plastic spoon was used to backfill the EnCore sampler. Sample was taken on the edge of the excavated & backfilled area along the eastern side of the concrete pad.
1210 - Collection of S07 - metals/BNAs



KAP

Pat Kuefler expressed interest in sampling one more area along the fence, approx. 30 ft. north of Sample #S07. Mr. DiFalco asked that we wait while S. Monette & T. Fredette left to go phone Mr. DiFalco's lawyer. (Approx. 1220).
1255 - Sheffield and Huff & Huff reps returned from calling lawyer. Mr. DiFalco "agreed under protest" to allow collection of Sample #S09.

Measured the following distances -
30 ft. pole to S08
17 ft. straight east from concrete to S08
15.5 ft. straight east from concrete to S07

1256 - Collection of Sample #S08
PHOTO #17
Time: 1302 Photographer: K. Pawski
Direction: E (down) Location: Oil Drum Acc. Area
Note: Collection of Sample #S08 - metals ~~Only~~ KAP 8/23/00
Will not collect for VOCs at this location or SVOCs. Only metals. Sample composited from 3 locations within washout area.

KAP

(10) 8/23/00

After collection of SOB, exchanged business cards & departed facility at approx. 1315.

END OF LOG.

KAP

SITE INVESTIGATION WORK PLAN
STAINED SOIL AREAS
SHEFFIELD STEEL CORP.
JOLIET FACILITY
USEPA ID No.: ILD 151 759 248

prepared for:

Sheffield Steel Corp.
Joliet, Illinois

prepared by:

Huff & Huff, Inc.
James E. Huff, P.E.
Sarah Monette, P.E.

January 18, 2000

HUFF & HUFF, INC.
ENVIRONMENTAL CONSULTANTS
LaGRANGE, ILLINOIS

TABLE OF CONTENTS

Page

LIST OF ACRONYMS iii

1. INTRODUCTION 1
   - 1.1 Investigation Objectives 1
   - 1.2 Project Organization and Key Personnel 1
   - 1.3 Project Schedule 2

2. STAINED SOIL AREAS 3
   - 2.1 Oil Drum Accumulation Area 3
   - 2.2 Oil Room / Gear Box 3
   - 2.3 Mill Scale Cooling Tank 5

3. SAMPLING APPROACH AND RATIONALE 6
   - 3.1 Overview of Approach and Rationale 6
   - 3.2 Contaminants of Potential Interest 6
   - 3.3 Soil Sample Locations 6

4. FIELD PROCEDURES 8
   - 4.1 Sample Collection 8
   - 4.2 Sampling Handling and Identification 8
     - 4.2.1 Sample Preservation 8
     - 4.2.2 Sample Labels 8
     - 4.2.3 Sample Packing and Shipping 9
     - 4.2.4 Sample Custody 9
   - 4.3 Equipment Decontamination 9
   - 4.4 Investigation-Derived Waste Management 10
   - 4.5 Documentation 10

5. LABORATORY ANALYSIS 11
   - 5.1 Data Quality Goals 11
   - 5.2 Analytical Methods and Detection Limits 11

6. QUALITY ASSURANCE PROJECT PLAN 12

LIST OF TABLES

TABLE

3-1 TCLP Parameters 7

LIST OF FIGURES

FIGURE
2-1 Stained Soil Locations 4

LIST OF APPENDICES

APPENDIX
A Health and Safety Plan

LIST OF ACRONYMS

AQAP	Analytical Quality Assurance Plan
IEPA	Illinois Environmental Protection Agency
MS/MSD	matrix spike / matrix spike duplicate
QA/QC	quality assurance / quality control
RCRA	Resource Conservation and Recovery Act
TCLP	Toxicity Characteristic Leaching Procedure
USEPA	United States Environmental Protection Agency

1. INTRODUCTION

1.1 Investigation Objectives

This work plan addresses three stained soil areas identified at the Sheffield Steel facility located in Joliet, Illinois. One area is located at the facility's "oil drum accumulation area," one is located near the "oil room," and the third is located near the "mill scale cooling tank." The stained soils were identified in August 1999, during a site inspection conducted by the United States Environmental Protection Agency (USEPA). The soils appeared to be stained with petroleum oil.

The objective of the proposed site investigation is to determine whether the soils should be managed as hazardous wastes, as defined by the Resource Conservation and Recovery Act (RCRA). If the soils are hazardous wastes, then an additional work plan for their remediation will be submitted to the USEPA.

1.2 Project Organization and Key Personnel

The USEPA requested Sheffield Steel address the stained soils in correspondence dated December 9, 1999. Sheffield Steel's legal counsel (Collier, Shannon, Rill & Scott) has retained Huff & Huff, Inc. (H&H) to perform the investigation.

Key project personnel are:

Mr. Douglas Strickland	Sheffield Steel Corp.	Mgr. Of Env., Health, & Safety
Mr. Frank DiFalco	Sheffield Steel Corp.	Operations Manager
Mr. Ken Morris	Sheffield Steel Corp.	Maint. & Eng. Manager
Mr. John L. Wittenborn	Collier, Shannon, Rill & Scott	Legal Counsel
Mr. Jeffrey Longsworth	Collier, Shannon, Rill & Scott	Legal Counsel
Mr. James E. Huff, P.E.	H&H Environmental Consultants	Principal
Ms. Sarah Monette, P.E.	H&H Environmental Consultants	Project Engineer

1.3 Project Schedule

The anticipated project schedule is as follows:

Site Investigation Field Work ..... March 2000

Data Review and Assessment ..... March/April 2000

Preparation and Review of Findings Report ..... April 2000

Submission of Findings Report to USEPA ..... May 2000

Submission of Remediation Work Plan to USEPA (if hazardous waste identified) ..... May 2000

2. STAINED SOIL AREAS

2.1 Oil Drum Accumulation Area

The "oil drum accumulation area" is an accumulation area for drums containing non-hazardous waste grease and oil-contaminated absorbent "pigs." The accumulation area is used for staging the drums before off-site disposal at Land and Lakes non-hazardous landfill. **Figure 2-1** depicts the area.

The entire accumulation area is underlain with a bermed concrete pad to avoid direct exposure of the drums to the ground. Some grease and oil has stained the concrete pad and the adjacent ground surface to the east, as observed during USEPA's August 1999 inspection. The staining is the result of minor leaks and spills during routine drum transfer operations. Approximately 60 square feet of soil are affected; the staining appears to be limited to the ground surface.

Sheffield Steel will remove the stained soils and place them into drums, then sample the drummed soils to determine whether they are RCRA hazardous wastes (see **Section 3**). *[Note: Sheffield Steel also will steam clean the concrete pad, as outlined in "Site Remediation Work Plan, Cleaning of Concrete Pad," which is provided under separate cover.]*

2.2 Oil Room / Gear Box

An out-of-use gear box is located on the ground outside of the "oil room." Oils remaining in the gear box overflowed during storm events in 1999. The overflows stained the ground surface, as observed during USEPA's August 1999 inspection. Approximately 45 square feet of soil are affected; the staining appears to be limited to the ground surface. **Figure 2-1** depicts the area of staining.

Sheffield Steel will remove the stained soils and place them into drums, then sample the drummed soils to determine whether they are RCRA hazardous wastes (see **Section 3**).

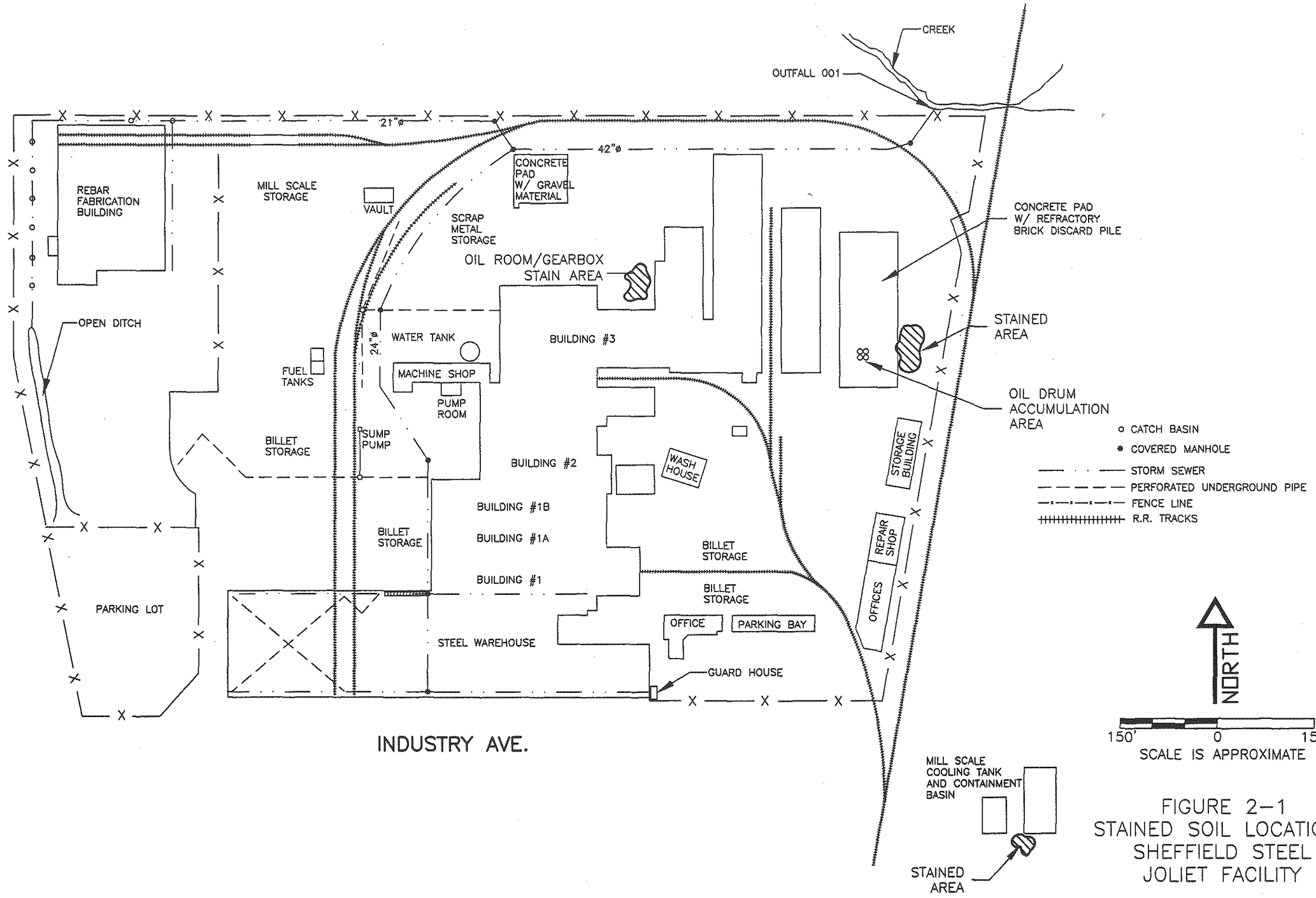


FIGURE 2–1
STAINED SOIL LOCATIONS
SHEFFIELD STEEL
JOLIET FACILITY

CADFILE:SWPPP–1

2.3 Mill Scale Cooling Tank

The "mill scale cooling tank" is used as a settling tank to remove mill scale and oil from waters used at the facility. The mill scale settles to the bottom the tank, then is scooped out, collected into drums, and disposed of off-site. The oils are skimmed from the top of the tank, collected into drums, and disposed of off-site. **Figure 2-1** depicts the mill scale tank area.

The adjacent ground surface directly to the south of the tank is stained with a material that appears to be oil, as observed during USEPA's August 1999 inspection. Approximately 100 square feet of soil are affected; the staining appears to be limited to the ground surface.

Sheffield Steel will remove the stained soils and place them into drums, then sample the drummed soils to determine whether they are RCRA hazardous wastes (see **Section 3**).

3. SAMPLING APPROACH AND RATIONALE

3.1 Overview of Approach and Rationale

This investigation will determine whether the three stained soil areas should be managed as RCRA hazardous wastes for disposal.

3.2 Contaminants of Potential Interest

The contaminants of potential interest will be limited to those contaminants that would make the stained soils RCRA hazardous wastes. Of the four potential hazardous waste characteristics, the only characteristic of interest is toxicity; petroleum stained soils would not reasonably be expected to have the characteristics of reactivity, ignitibility, or corrosivity. This expectation is consistent with the generator's knowledge and the characteristics of the wastes routinely generated at the facility.

In order to determine whether the soils exhibit the RCRA toxicity characteristic, a full scan of TCLP organics and TCLP metals will be performed. The TCLP parameters are listed in **Table 3-1**, along with their RCRA regulatory concentrations.

3.3 Soil Sample Locations

A total of three soil samples will be collected:

- One sample will be collected from the drums of soil from the oil drum accumulation area.
- One sample will be collected from the drums of soil from the oil room / gear box area.
- One sample will be collected from the drums of soil from the mill scale cooling tank area.

TABLE 3-1

TCLP PARAMETERS

TCLP Organics	RCRA Level, mg/L	TCLP Metals	RCRA Level, mg/L
Benzene	0.5	Arsenic	5.0
Carbon tetrachloride	0.5	Barium	100.0
Chlorobenzene	100.0	Cadmium	1.0
Chloroform	6.0	Chromium	5.0
1,2-Dichloroethane	0.5	Lead	5.0
1,1-Dichloroethylene	0.7	Mercury	0.2
Methyl ethyl ketone	200.0	Selenium	1.0
Tetrachloroethylene	0.7	Silver	5.0
Trichloroethylene	0.5		
Vinyl chloride	0.2		
o-Cresol	200.0 [a/]		
m-Cresol	200.0 [a/]		
p-Cresol	200.0 [a/]		
1,4-Dichlorobenzene	7.5		
2,4-Dinitrotoluene	0.13 [b/]		
Hexachlorobenzene	0.13 [b/]		
Hexachlorobutadiene	0.5		
Hexachloroethane	3.0		
Nitrobenzene	2.0		
Pentachlorophenol	100.0		
Pyridine	5.0 [b/]		
2,4,5-Trichlorophenol	400.0		
2,4,6-Trichlorophenol	2.0		

a/ If o-, m-, and p-cresol concentrations cannot be differentiated, then the total cresol concentration is used. The regulatory level for total cresol is 200 mg/L.

b/ The quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.

4. FIELD PROCEDURES

[Note: Field work safety procedures are described in the site "Health and Safety Plan," which is provided as Appendix A.]

4.1 Sample Collection

Sampling Method. Soil samples will be collected using a trowel.

Field Screening. Samples will be visually characterized at the time of collection. The characterization will include visual inspection for soil type and color, water content, and contaminant-related materials.

4.2 Sampling Handling and Identification

4.2.1 Sample Preservation

Containers. Samples will be placed in containers provided by the laboratory. The containers will meet the minimum quality requirements set forth in USEPA "OSWER Directive No. 9240.0-05A, Specifications and Guidance for Contaminant-Free Sample Containers."

Additives. Samples will not require field preservation with chemical additives.

Temperature Control. All samples will be maintained in coolers with ice. Samples will be placed in the coolers as soon as possible after sample collection.

4.2.2 Sample Labels

Samples will be identified by a sticker-label affixed to the container. The information will be recorded in waterproof ink. The information recorded on the label will include:

- Project name
- Sample location identification
- Sample depth
- Date
- Initials of sampler

4.2.3 Sample Packing and Shipping

The following procedures will be used to assure the integrity of sample containers during shipping:

- Careful packing of sample containers in coolers (e.g., use of packing materials).
- Placement of each sample container in an individual plastic baggie to help assure containment, prevention of cross-contamination, and protection of labels.
- Double-bagging of ice to minimize potential for water damage to labels and/or seepage into containers.

4.2.4 Sample Custody

Chain-of-custody will begin as soon as a sample is collected. Once sample labels are placed on sample containers, the containers will be documented on a chain-of-custody form. The laboratory will provide the forms.

4.3 Equipment Decontamination

Decontamination of sampling equipment will be performed in the following steps:

1. Tap water and Alconox wash and scrub.
2. Tap water rinse.
3. Distilled water rinse.
4. Methanol rinse.
5. Distilled water rinse.
6. Thorough air drying.

Decontamination will be performed on site, in an area located away from the sampling activities.

4.4 Investigation-Derived Waste Management

The only investigation-derived waste that will be generated is decontamination water. A small volume of decontamination water will be generated: approximately 0.5 gallon per sample. The decontamination water will be discarded into the soil drums upon completion of sampling activities.

4.5 Documentation

Field documentation will be sufficient to:

- Permit another professional to understand what tasks were performed.
- Identify the procedures, equipment, and materials used in sufficient detail to allow reproducibility of results.
- Identify other evidence, as appropriate, that documents the findings.

Each document will include the following information, at a minimum:

- Project identifier.
- Date and time (as appropriate).
- Location / work area.
- Names of personnel involved.
- Activities performed.
- Equipment used.
- Observations regarding potential contamination.

5. LABORATORY ANALYSIS

5.1 Illinois Data Quality Goals

The analytical data quality goals will be as set forth in the Illinois Environmental Protection Agency (IEPA) "Analytical Quality Assurance Plan" (AQAP) for the Bureau of Land Site Remediation Program. "Level IIIB" data quality requirements will be met. (See **Section 6** for discussion of quality assurance / quality control procedures.)

5.2 Analytical Methods and Detection Limits

Parameters to be analyzed are TCLP organics and TCLP metals, per USEPA SW-846 guidance. The detection limits will be less than or equal to the RCRA regulatory levels, as identified in **Table 3-1**.

6. QUALITY ASSURANCE PROJECT PLAN

Project quality assurance / quality control (QA/QC) will be as set forth in the Illinois Environmental Protection Agency (IEPA) "Analytical Quality Assurance Plan" (AQAP) for the Bureau of Land Site Remediation Program. "Level IIIB" data quality requirements will be met.

Field QA/QC. Field QA/QC will include the collection and/or designation of field blanks, trip blanks, and matrix spike/matrix spike duplicate (MS/MSD) samples.

- One field blank will be collected. The field blank will be analyzed for TCLP organics (volatiles only).
- One trip blank will be included with the sample container shipment. The trip blank will be analyzed for TCLP organics (volatiles only).
- One MS/MSD sample will be specified.

No field duplicate will be collected because only three samples total will be collected.

Laboratory QA/QC. Laboratory QA/QC will be managed by the laboratory. The selected laboratory will be Test America in Bartlett, Illinois. The laboratory will be notified that "Level IIIB" data quality requirements are necessary. QA/QC will include matrix spike/matrix spike duplicate (MS/MSD) samples, which the laboratory will select.

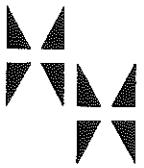
APPENDIX A

HEALTH and SAFETY PLAN

Sheffield Steel
Joliet Facility

Prepared by:
James E. Huff, P.E.
Sarah Monette, P.E.

January 18, 2000



HUFF & HUFF, INC.
ENVIRONMENTAL CONSULTANTS
LaGRANGE, ILLINOIS

TABLE OF CONTENTS

LIST OF ACRONYMS iii

1. INTRODUCTION 1

2. SITE DESCRIPTION 2
   2.1 Site Location and Layout 2
   2.2 Proposed Work 2

3. PERSONNEL RESPONSIBILITIES 5
   3.1 Personnel Responsibility Overview 5
   3.2 Personnel Training 5
   3.3 Site Health and Safety Manager 6

4. PHYSICAL AND CHEMICAL HAZARDS 7
   4.1 Physical Hazards 7
   4.2 Chemical Hazards 8

5. MEDICAL FITNESS / PPE 10
   5.1 Medical Fitness 10
   5.2 Personal Protective Equipment 10

6. WORK ZONES 12

7. DECONTAMINATION PROCEDURES 13
   7.1 Personal Protective Equipment Decontamination 13
   7.2 Sampling Equipment Decontamination 13
   7.3 Heavy Equipment Decontamination 13

8. EMERGENCY RESPONSE 14
   8.1 Emergency Contacts 14
   8.2 Hospital Location 14
   8.3 Medical Records Access 16
   8.4 Emergency Care 16
      8.4.1 First Aid Kit 16
      8.4.2 Heat Related Emergencies 16
      8.4.3 Chemical Exposure Emergencies 19
   8.5 Decontamination During Medical Emergencies 19

9. SITE SECURITY 21

TABLE OF CONTENTS (continued)

LIST OF FIGURES

Figure 2-1 Site Location Map 3
Figure 2-2 Current Site Layout Map 4
Figure 8-1 Hospital Location Map 15

LIST OF ATTACHMENTS

OSHA Training Certificates
Chemical Information
Signature Sheet

ACRONYMS

BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CFR	Code of Federal Regulations
IDLH	Immediate Danger to Life and Health
MSDS	Material Safety Data Sheet
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PID	Photoionization Detector
PAH	Polynuclear Aromatic Hydrocarbons
PPE	Personal Protective Equipment
ppm	parts per million
STEL	Short Term Exposure Limit
TCLP	Toxicity Characteristic Leaching Procedure
TWA	Time Weighted Average
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compound

1. INTRODUCTION

The purpose of this Health and Safety Plan is to define health and safety protocols to be followed during investigation/remediation activities at the Sheffield Steel facility located in Joliet, Illinois.

The work will be performed in areas suspected of containing petroleum residues. The work activities will include removing stained soils, cleaning a concrete pad, and collecting soil and water samples. The work procedures will be as set forth in the two work plans prepared for this site by Huff & Huff, both dated January 2000: "Site Investigation Work Plan, Stained Soil Areas," and "Site Remediation Work Plan, Cleaning of Concrete Pad."

The health and safety protocols established in this plan are based upon the site conditions and chemical hazards known to be present and/or anticipated to be present from the available site data. This plan is intended solely for use during the proposed activities. Specifications herein are subject to review and revisions based upon actual conditions encountered in the field. Before site activities begin, all personnel involved in these activities will have read and understood this plan and all revisions made thereto.

The information presented in this Health and Safety Plan includes:

- The site description
- Personnel responsibilities
- Potential physical and chemical hazards
- Medical surveillance
- Work zones
- Decontamination procedures
- Emergency response
- Site security

2. SITE DESCRIPTION

2.1 Site Location and Layout

The site address is:

Sheffield Steel
Industry Avenue
Joliet, Illinois

Figure 2-1 depicts the site location and Figure 2-2 depicts the site layout, including proposed work areas. The site is located in an area of industrial properties.

2.2 Proposed Work

Surface staining has been identified in three soil areas and on a concrete pad. The soils will be removed from the ground and placed into drums, and the concrete pad will be scrubbed and steam-cleaned, with the cleaning waters wet-vacuumed into drums. Samples will be taken from the soil and water drums. The samples will be analyzed for hazardous waste characteristics: TCLP organics and TCLP metals.

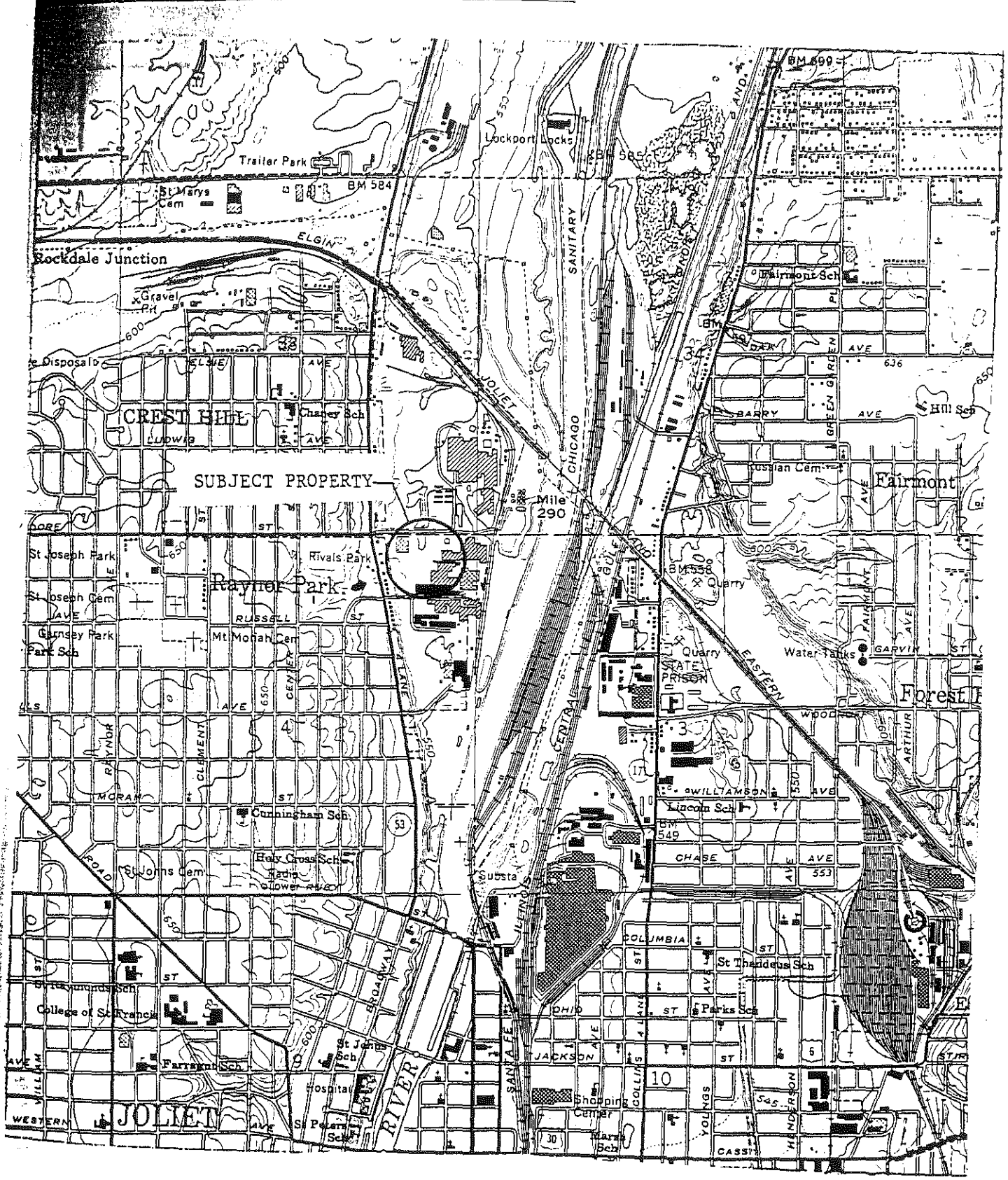


FIGURE 2-1

SITE LOCATION MAP
SHEFFIELD STEEL

NORTH

SCALE: 1" = 2000'

SOURCE: UNITED STATES DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY
JOLIET QUADRANGLE

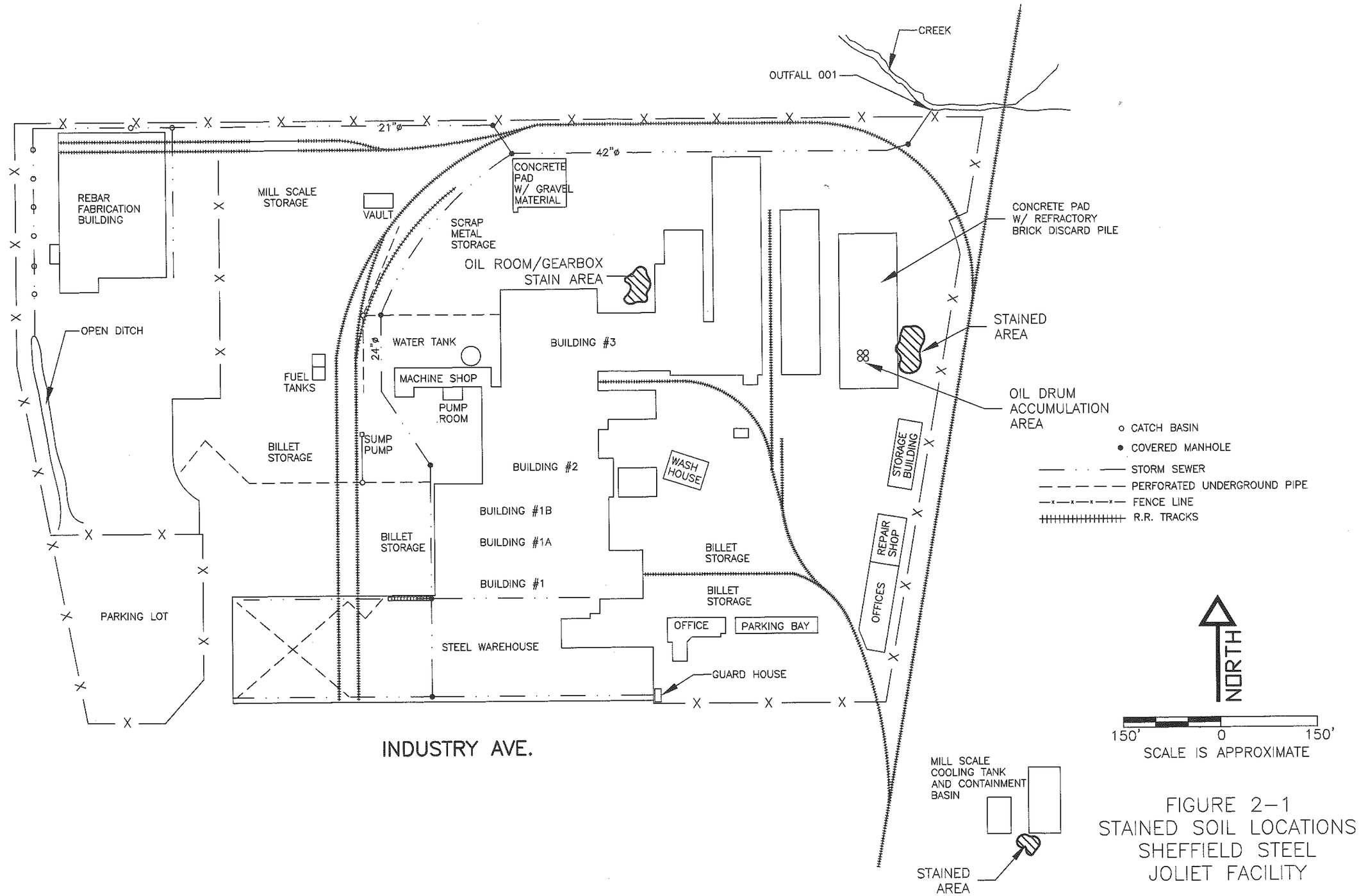


FIGURE 2–1
STAINED SOIL LOCATIONS
SHEFFIELD STEEL
JOLIET FACILITY

CADFILE:SWPPP–1

3. PERSONNEL RESPONSIBILITIES

3.1 Personnel Responsibility Overview

All on-site personnel shall be trained in health and safety issues and will responsible for adhering to the procedures in this Health and Safety Plan. The Huff & Huff Site Health and Safety Manager will have ultimate responsibility for the procedures. Should the Site Health and Safety Manager become incapacitated or absent in any way, the contractor shall be in charge, and shall stop work until the Site Health and Safety Manager is available.

3.2 Personnel Training

All operational personnel shall have participated in routine health and safety education and training programs. These training programs shall have been designed to comply with USEPA and OSHA 29 CFR 1910.120(e) requirements: 40 hours of initial instruction, 8 hours of refresher training, and an additional 8 hours of specialized training for supervisors. At a minimum, the training shall have included the following:

- General Safety Rules
- First Aid/CPR
- Emergency Response Procedures
- Fire Prevention/Protection
- Electrical Hazards
- Basics of Chemistry
- Basics of Toxicology/Physiology
- Hazardous Materials (Types/Characteristics)
- Hazard Communication Information
- Respiratory Protection
- Respirator Training
- Chemical Protective Clothing
- Decontamination Procedures/Personal Hygiene
- Confined Space Work/Safety
- Atmospheric Testing/Sampling Procedures
- Federal and State Regulations

Current training certificates for Huff & Huff personnel are included in the attachments to this plan.

3.3 Site Health and Safety Manager

The Huff & Huff Site Health and Safety Manager will be responsible for the health and safety of personnel on-site, including the contractors. The Manager's specific responsibilities will be:

1. To require that all personnel entering the site read this Health and Safety Plan and acknowledge in writing that they understand the contents of the plan. The sign-off form is provided in the attachments.

2. To assure that the Health and Safety Plan is adhered with.

3. To decide when to change levels of personal protective equipment, and, if necessary, to shut down operations.

Failure to follow guidelines of the Site Health and Safety Manager can be cause for suspension of a worker from the site.

4. PHYSICAL AND CHEMICAL HAZARDS

4.1 Physical Hazards

The potential physical hazards for this site include heavy objects/moving machinery and fire/explosion.

heavy objects / moving machinery
Site activities will include operations involving steam-cleaning equipment and wet-vacuuming equipment.

fire / explosion
The fuels used for the cleaning equipment might present the potential for fire/explosion when exposed to a heat source and source of ignition.

Note: Potential physical hazards are anticipated from cleaning activities only, not from soil removal and sampling activities. The soil staining appears to be limited to the ground surface (top one foot). Therefore, no heavy equipment will be used to transfer the soils into drums, and no underground utilities will be encountered. The soil and water samples will be collected from the drums manually, using trowels and disposable bailers.

The following steps will be taken to avoid potential injury associated with the physical hazards:

1. Modified Level D PPE (Level C minus respirator: steel toes boots, hard hat, latex gloves, and safety glasses) will be worn for all field activities. (Respirators might also be required under certain conditions; see Section 4.2.) No one except the cleaning crew should be within 25 feet of the cleaning machinery while it is in operation. Due caution should be exercised by all personnel on site.

2. During operations, personnel shall act as safety backup to each other and shall provide emergency assistance.

3. Personnel will review standard communications for operating and emergency conditions.

4. NO SMOKING will be permitted anywhere within 25 feet of sampling activities.

5. All electrical equipment (power tools, extension cords, instruments, radios, etc.) shall be in conformance with OSHA 29 CFR 1926.400 Subpart K.

4.2 Chemical Hazards

The potential chemical hazards at the site are related to exposure to the chemical contaminants in the soil and water. The primary contaminants anticipated to be present at the site are petroleum constituents: BTEX and PAHs. Potential routes of exposure are dermal adsorption, ingestion, and inhalation.

The following steps will be taken to avoid potential injury associated with chemical hazards:

1. Modified Level D PPE (Level C minus respirator: steel toed boots, hard hat, gloves, and safety glasses) will be worn for all field activities. Upgrade to Level C (respirator) might be required based upon site atmospheric conditions (see Item 8 below).

2. Work areas for various operational activities will be established. Entrance and exit locations will be designated and emergency escape routes delineated. (Work zones are discussed in Section 6.)

3. Personnel should wash their hands and face before leaving the site.

4. Eating, drinking, chewing gum or tobacco, smoking, or any other practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in any work area.

5. Medicine and alcohol can increase the effects from exposure to toxic chemicals. Prescribed drugs should not be taken by personnel where the potential for adsorption, inhalation, or ingestion of toxic substances exists, unless specifically approved by a qualified physician. Alcoholic beverage intake must be avoided.

6. Contact with contaminated or suspected contaminated surfaces should be avoided. Personnel should avoid walking through puddles, leachate, and discolored surfaces whenever possible. Personnel should not kneel on the ground, lean, sit, or place equipment on drums, containers, or contaminated areas of the ground.

7. Contact lenses should not be worn when the hazard of a splash exists.

8. Site atmospheric conditions will be monitored during any subsurface activities. Benzene concentrations and dust will be used as indicator parameters for determining the level of respiratory/ingestion protection. These parameters will be monitored in two ways: (a) PID meter and (b) visual observation.

    8a. PID Meter. On a toxicological basis, benzene is the petroleum constituent of greatest concern. The MSDS for benzene is included in the attachments to this plan. The TWA is 1 ppm (15 min) and the STEL is 5 ppm (15 min). A 10.2 eV PID or a 10.6 eV PID

will be calibrated to read the VOC concentration in a sample or in the atmosphere as benzene. If the average PIDs level is greater than 1 ppm above background in the breathing zone, then the level of respiratory protection will be upgraded from Level D (none) to Level C (air-purifying respirators with combination dust/organic vapor removal cartridges). PIDs will be used a minimum of once at every location to monitor the breathing zone.

8b. Visual Observation. If airborne dust is observed, then the level of respiratory/ingestion protection will be upgraded from Level D (none) to Level C (air purifying respirators with combination dust/organic vapor removal cartridges.)

In the case that upgrade to Level C PPE is required, all personnel shall have air-purifying respirators available with combination dust/organic vapor cartridges. The following protocol apply to the use of respirators:

- Respirators shall be clean and disinfected after each day's use, or more often if necessary.
- Before donning, respirators will be inspected for worn or deteriorated parts.
- Personnel must use the buddy system when wearing respiratory protection equipment.
- No facial hair, which interferes with a satisfactory fit of the mask-to-face-seal, is allowed.
- Contact lenses shall not be worn when respirator protection is required.

5. MEDICAL FITNESS / PPE

5.1 Medical Fitness

Huff & Huff personnel participate in a medical program that includes a physical examination once every two years. The program adheres to the requirements of 29 CFR 1910.120(f). The physical examination includes blood, urinalysis, cardio-pulmonary, hearing, and vision tests, as well as a respiratory examination to determine physical fitness to wear respiratory equipment. Personnel are mailed a copy of the record following the examination and have been made aware that the medical records are accessible.

Contractors' medical programs must be similar to Huff & Huff's medical program.

5.2 Personal Protective Equipment

PPE is a very important consideration in any site investigation that involves or may involve hazardous working conditions. As stated in Section 4.2, given the preliminary information concerning the site, modified Level D protection (Level C minus respirator) will be implemented. Respirators with combination dust/organic vapor cartridges will be required whenever the average breathing zone PID reading is 1 ppm or more above background levels.

The Site Health and Safety Manager will decide on appropriate PPE to be worn and he/she will have the discretionary power to upgrade personal protection as appropriate. For example, under muddy conditions, the Site Health and Safety Manager may require disposable boot covers and Tyvek coveralls to be worn. Failure to wear PPE required by the Site Health and Safety Manager can be cause for suspension of a worker from the site.

The following PPE will be available to all on-site personnel:

- hard hat
- safety boots (steel toe)
- gloves (inner and outer)
- clean work clothes (company issued and cleaned)
- full-face or partial-face respirators with combination dust/organic vapor cartridges
- disposable boot covers
- protective (Tyvek) coveralls

6. WORK ZONES

The Site Health and Safety Manager will establish work zones in the event that levels monitored during the work procedures exceed the breathing zone action levels as defined in Section 4.2. The work zones will include an "exclusion zone" in the area where the hazard is present, a "transition zone" where decontamination will take place, and a "support zone" which will be in an area free of hazard. Only protected personnel will be allowed in the hot zone and transition zone; all other personnel will remain in the support zone.

7. DECONTAMINATION PROCEDURES

(Note: Special decontamination procedures to be implemented during medical emergencies are discussed in Section 8, Emergency Response.)

7.1 Personal Protective Equipment Decontamination

Decontamination of PPE will be performed on site in an area designated as a "transition zone." Decontamination will be performed in the following steps:

1. Remove boots and clean, removing any soil or debris.
2. Remove hard hat and clean, removing soil and debris.
3. Remove outer gloves, garments, and tape and place in plastic garbage bag for proper disposal.
4. Remove work clothes and send to commercial/industrial laundry service.
5. Remove inner gloves and place in plastic garbage bag for proper disposal.
6. Remove respirator cartridges and place in plastic garbage bag for proper disposal.
7. Remove respirator and place in bag for proper cleaning and storing.
8. The face and hands should be washed thoroughly as soon as possible after the PPE is removed.

7.2 Sampling Equipment Decontamination

Decontamination of sampling equipment will be performed on site in an area designated as a "transition zone." Decontamination will be performed in the following steps:

1. Tap water and Alconox wash and scrub.
2. Tap water rinse.
3. Distilled water rinse.
4. Methanol rinse.
5. Distilled water rinse.
6. Thorough air drying.

7.3 Heavy Equipment Decontamination

The only heavy equipment used on site will be the steam-cleaning/wet-vacuuming equipment. Based upon its use as cleaning equipment, its decontamination will be performed as part of the cleaning process.

8. EMERGENCY RESPONSE

8.1 Emergency Contacts

The following phone numbers may be of assistance during a site emergency.

Ambulance	911
Joliet Fire Department	911
Joliet Police Department	911
St. Joseph Medical Center	911
Huff & Huff, Inc.	(708) 579-5940

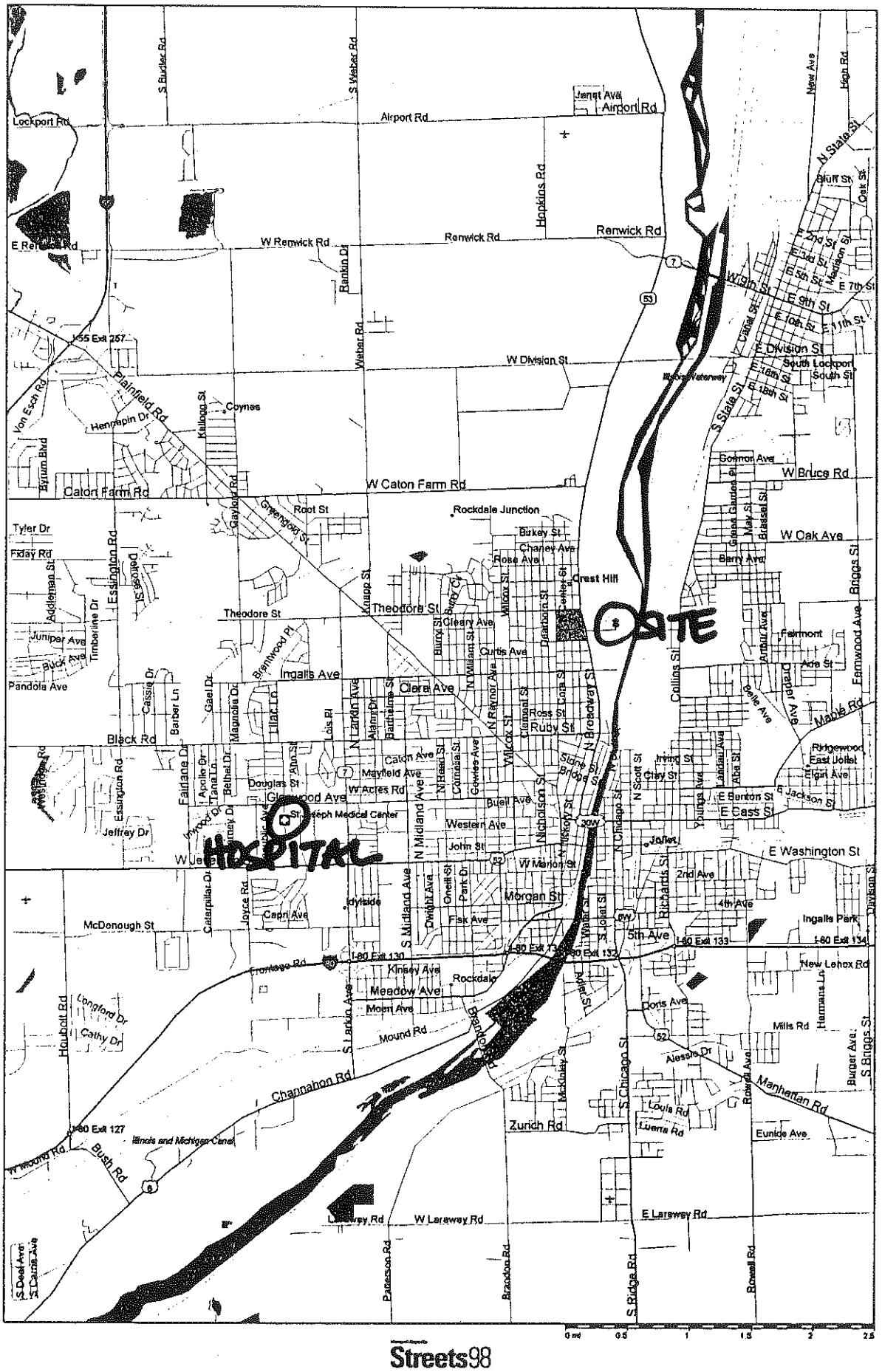
8.2 Hospital Location

In the event it becomes necessary to transport a victim to the hospital, a map with directions to the St. Joseph Medical Center is provided as Figure 8-1.

The directions to the hospital are as follows:

Exit the property onto Industry Ave. heading right (west).
Turn right (north) onto Route 53 (Broadway St.).
Follow Route 53 (Broadway St.) to Route 7 (Theodore St.).
Turn left (west) onto Route 7 (Theodore St.).
Follow Route 7 to where it turns south (Larkin Ave.).
Turn left (south) onto Route 7 (Larkin Ave.).
Follow Route 7 (Larkin Ave.) to Glenwood Ave.
Turn right (west) onto Glenwood Ave.
The St. Joseph Medical Center is located on south (left) side of Glenwood Ave.

FIGURE 8-1
HOSPITAL LOCATION MAP



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8.3 Medical Records Access

Personal medical records for Huff & Huff personnel may be obtained from:

Occupational Health Services
Executive Clinic
222 East Ogden Avenue
Hinsdale, IL 60521
Phone: (630) 887-6133
Emergency Phone: (630) 887-6133

8.4 Emergency Care

At least one first aid kit will be available on-site for minor medical care. For major medical care, emergency medical care procedures must be implemented. Heat related emergencies and chemical exposure emergencies are two of the more common major medical problems encountered during environmental investigation activities. The requirements of the first aid kit and the symptoms of the heat and chemical related emergencies are provided below, along with emergency care procedures. The procedures discussed are only guidelines: actual training in emergency medical care or basic first aid is recommended.

8.4.1 First Aid Kit

First aid kits that meet the requirements of 29 CFR 1926.50 will be accessible to all personnel associated with this project. The first aid kits will consist of waterproof containers with individual sealed packages for each care item. The contents will be checked before being brought to the job site.

8.4.2 Heat Related Emergencies

Heat exposure becomes dangerous when the body can no longer regulate its core temperature. Heat related illnesses include heat rash, heat cramps, heat exhaustion, and heat stroke. These illnesses may occur in sequence, beginning with heat rash and progressing into a more severe illness, such

as heat stroke. Alternatively, heat stroke may occur with no precursor. It is important always to remember that heat stroke can cause irreversible damage or death if not treated promptly.

Heat Rash affects the skin and feels like prickly heat.

Signs and Symptoms:
1. Skin Rash
2. Tingling or prickling sensation on the skin.

Emergency Care:
1. Shower
2. Dry Skin Thoroughly
3. Change undergarments as needed
4. Stay in a cool place
5. Avoid repeated heat exposure.

Heat Cramps are muscle pains, usually in lower extremities, the abdomen, or both.

Signs and Symptoms:
1. Cramps in lower extremities or abdomen. The cramps occur suddenly and commonly are incapacitating and cause intense pain, though some cramps can be mild.
2. Increased respiratory rate.
3. Increased pulse rate.
4. Pale and moist skin.
5. Normal body temperature.
6. Loss of consciousness.
7. Generalized weakness.

Emergency Care:
1. Remove outer, protective garments to allow the victim to cool down. Move the victim to a cool environment; lay victim down if feels faint.

2a. If the person is not nauseated, give 1 or 2 glasses of water or an electrolyte solution. Have the person drink slowly. The use of salt tablets is not recommended, as they may precipitate nausea.

2b. If the person is nauseated, avoid giving anything by mouth until the nausea subsides.

3. Avoid massaging the cramping muscles. This rarely helps and may actually aggravate the pain.
4. Sponge the person with cool water. If you fan the person, avoid chilling: when the body chills, the muscles generate energy; when the body shivers, this energy is released in the form of heat and actually can increase the body temperature.
5. As salt and water levels are replenished, the pain will subside. A return to work is NOT recommended for a period of at least 12 hours. Further exertion may lead to heat exhaustion or heat stroke.

Heat Exhaustion is a more severe response to loss of salt and water.

Signs and Symptoms:

1. Heat exhaustion may come on suddenly and cause collapse, or may be present with a headache, fatigue, dizziness, and nausea with occasional abdominal cramping.
2. Profuse sweating.
3. Rapid and weak pulse rate.
4. Rapid and shallow respiration rate.
5. Pale and clammy skin.
6. Normal or decreased body temperature.
7. Irritability and restlessness.

Emergency Care:

1. Move the person to a cool environment, take off as much clothing as possible, place in a supine position with legs elevated.
2. Sponge the person with cool water. If you fan the person, avoid chilling: when the body chills, the muscles generate energy; when the body shivers, this energy is released in the form of heat and actually can increase the body temperature.
3. Monitor the person's level of consciousness and airway.
4. If the victim does not feel better, at this point, consider this a medical emergency and seek prompt intervention by emergency medical services.

Heat Stroke is caused by a severe disturbance in the body's heat-regulating mechanism and is a profound emergency, with a mortality rate ranging from 25 to 50 percent. It is most common in men over 40, especially in alcoholics. It can also occur in people of any age having too much exposure to the sun or prolonged confinement in a hot atmosphere. Heat stroke comes on suddenly. As the sweating mechanism fails, the body temperature begins to rise precipitously, reaching 106°F (41°C) or higher within 10 to 15 minutes. If the situation is not corrected rapidly, the body cells, especially the cells of the brain, are literally cooked, and irreversible central nervous system damage occurs.

Signs and Symptoms:

1. Strong and bounding pulse rate.
2. Hot, dry and flushed skin.
3. Potential headache, dizziness, and dryness of mouth.
4. Seizures and coma.
5. Potential loss of consciousness and airway maintenance problems.

Emergency Care:

1. Speed is essential: delay may result in permanent brain damage.
2. Establish an open airway.
3. Move the person to a cool environment. Take off as much clothing as possible, place in a semi-reclining position with the head elevated.
4. Use any means possible to cool the person. Improvise with whatever is available, such as a tub filled with cold water and ice cubes. Vigorous efforts to cool the worker must continue until the body is below 102°F (38.9°C).
5. If the victim is conscious, give water or electrolyte solution. Have the person drink slowly.

6. This is a medical emergency. Seek prompt intervention by emergency medical services.

8.4.3 Chemical Exposure Emergencies

Chemical exposure symptoms vary depending upon the chemical of concern. Based the anticipated hazards at this site, the primary chemical of concern will be benzene. The MSDS for benzene is provided in the attachments.

In the event of chemical exposure, the following general measures should be taken:

1. Contact the Site Health and Safety Manager immediately.
2. For inhaled contaminants, seek immediate medical attention.
3. For contamination of the skin and eyes, use water to flush the affected area.
4. Wash splashes off protective clothing as rapidly as possible and remove the clothing carefully.

8.5 Decontamination During Medical Emergencies

Decontamination procedures for injured personnel are an important medical consideration. Improper decontamination may aggravate or cause more serious health effects. In the event of minor physical problems or injuries, e.g., sprained ankle, cuts, etc., normal decontamination procedures should be followed. However, in the event that a life-threatening situation occurs, decontamination procedures will be omitted and prompt life-saving first aid and medical attention will be administered.

Special decontamination procedures to be followed during the response to a life-threatening physical injury include:

1. Contact the Site Health and Safety Manager immediately.
2. Remove outer garments (depending on the weather) if they do not cause delays, interfere with treatment, or aggravate the problem. Full-encapsulating and chemical resistant suits can be cut away.

3. If the outer contaminated garments cannot safely be removed, wrap the individual in plastic, rubber, or blankets to help prevent contaminating the inside of ambulances and medical personnel.

4. No attempt should be made to wash or rinse the victim at the site. The one exception to this is if it is known that the individual has been contaminated with an extremely toxic or corrosive material which could also cause severe injury or loss of life.

9. SITE SECURITY

Personnel entering the work area shall be required to read this Health and Safety Plan and familiarize themselves with the site conditions. Unauthorized personnel will not be allowed access to the work area. At the end of the work day, the Site Health and Safety Manager is to ensure the work area has been secured, including the backfilling of all boreholes.

ATTACHMENTS

CERTIFICATE OF COMPLETION

Presented to

Sarah Monette

In Recognition of Having Successfully Completed
Hazardous Waste Operations and Emergency Response
Refresher Training under 29 CFR 1910.120(e)(8)

November 17, 1999

Huff & Huff, Inc.

BENZENE

BNZ

Common Synonyms
Benzol
Benzole

Watery liquid | Colorless | Gasoline-like odor

Floats on water. Flammable, irritating vapor is produced. Freezing point is 42°F.

Avoid contact with liquid and vapor. Keep people away.
Wear goggles and self-contained breathing apparatus.
Shut off ignition sources and call fire department.
Stop discharge if possible.
Stay upwind and use water spray to "knock down" vapor.
Isolate and remove discharged material.
Notify local health and pollution control agencies.

Fire

FLAMMABLE.
Flashback along vapor trail may occur.
Vapor may explode if ignited in an enclosed area.
Wear goggles and self-contained breathing apparatus.
Extinguish with dry chemical, foam, or carbon dioxide.
Water may be ineffective on fire.
Cool exposed containers with water.

Exposure

CALL FOR MEDICAL AID.

VAPOR
Irritating to eyes, nose and throat.
If inhaled, will cause headache, difficult breathing, or loss of consciousness.
Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.

LIQUID
Irritating to skin and eyes.
Harmful if swallowed.
Remove contaminated clothing and shoes.
Flush affected areas with plenty of water.
IF IN EYES, hold eyelids open and flush with plenty of water.
IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk.

Water Pollution

HARMFUL TO AQUATIC LIFE IN VERY LOW CONCENTRATIONS.
May be dangerous if it enters water intakes.
Notify local health and wildlife officials.
Notify operators of nearby water intakes.

1. RESPONSE TO DISCHARGE

(See Response Methods Handbook)
Issue warning-high flammability
Restrict access

2. LABEL

2.1 **Category:** Flammable liquid
2.2 **Class:** 3

3. CHEMICAL DESIGNATIONS

3.1 **CG Compatibility Class:** Aromatic Hydrocarbon
3.2 **Formula:** C_6H_6
3.3 **IMO/UN Designation:** 3.2/1114
3.4 **DOT ID No.:** 1114
3.5 **CAS Registry No.:** 71-43-2

4. OBSERVABLE CHARACTERISTICS

4.1 **Physical State (as shipped):** Liquid
4.2 **Color:** Colorless
4.3 **Odor:** Aromatic; rather pleasant aromatic odor; characteristic odor

5. HEALTH HAZARDS

5.1 **Personal Protective Equipment:** Hydrocarbon vapor canister, supplied air or a hose mask; hydrocarbon-insoluble rubber or plastic gloves; chemical goggles or face splash shield; hydrocarbon-insoluble apron such as neoprene.
5.2 **Symptoms Following Exposure:** Dizziness, excitation, pallor, followed by flushing, weakness, headache, breathlessness, chest constriction. Coma and possible death.
5.3 **Treatment of Exposure:** SKIN: flush with water followed by soap and water; remove contaminated clothing and wash skin. EYES: flush with plenty of water until irritation subsides. INHALATION: remove from exposure immediately. Call a physician. IF breathing is irregular or stopped, start resuscitation, administer oxygen.
5.4 **Threshold Limit Value:** 10 ppm
5.5 **Short Term Inhalation Limits:** 75 ppm for 30 min.
5.6 **Toxicity by Ingestion:** Grade 3; LD_{50} = 50 to 500 mg/kg
5.7 **Late Toxicity:** Leukemia
5.8 **Vapor (Gas) Irritant Characteristics:** If present in high concentrations, vapors may cause irritation of eyes or respiratory system. The effect is temporary.
5.9 **Liquid or Solid Irritant Characteristics:** Minimum hazard. If spilled on clothing and allowed to remain, may cause smarting and reddening of the skin.
5.10 **Odor Threshold:** 4.68 ppm
5.11 **IDLH Value:** 2,000 ppm

6. FIRE HAZARDS

6.1 **Flash Point:** 12°F C.C.
6.2 **Flammable Limits in Air:** 1.3%-7.9%
6.3 **Fire Extinguishing Agents:** Dry chemical, foam, or carbon dioxide
6.4 **Fire Extinguishing Agents Not to be Used:** Water may be ineffective
6.5 **Special Hazards of Combustion Products:** Not pertinent
6.6 **Behavior in Fire:** Vapor is heavier than air and may travel considerable distance to a source of ignition and flash back
6.7 **Ignition Temperature:** 1097°F
6.8 **Electrical Hazard:** Class I, Group D
6.9 **Burning Rate:** 5.0 mm/min.
6.10 **Adiabatic Flame Temperature:** Data not available
6.11 **Stoichiometric Air to Fuel Ratio:** Data not available
6.12 **Flame Temperature:** Data not available

7. CHEMICAL REACTIVITY

7.1 **Reactivity With Water:** No reaction
7.2 **Reactivity with Common Materials:** No reaction
7.3 **Stability During Transport:** Stable
7.4 **Neutralizing Agents for Acids and Caustics:** Not pertinent
7.5 **Polymerization:** Not pertinent
7.6 **Inhibitor of Polymerization:** Not pertinent
7.7 **Molar Ratio (Reactant to Product):** Data not available
7.8 **Reactivity Group:** 32

8. WATER POLLUTION

8.1 **Aquatic Toxicity:** 5 ppm/6 hr/minnow/lethal/distilled water
20 ppm/24 hr/sunfish/TL_m/tap water
8.2 **Waterfowl Toxicity:** Data not available
8.3 **Biological Oxygen Demand (BOD):** 1.2 lb/lb, 10 days
8.4 **Food Chain Concentration Potential:** None

9. SHIPPING INFORMATION

9.1 **Grades of Purity:**
Industrial pure .....99+%
Thiophene-free .....99+%
Nitration .....98+%
Industrial 90% .....85+%
Reagent .....99+%
9.2 **Storage Temperature:** Open
9.3 **Inert Atmosphere:** No requirement
9.4 **Venting:** Pressure-vacuum

10. HAZARD ASSESSMENT CODE

(See Hazard Assessment Handbook)
A-T-U-V-W

11. HAZARD CLASSIFICATIONS

11.1 **Code of Federal Regulations:** Flammable liquid
11.2 **NAS Hazard Rating for Bulk Water Transportation:**

Category	Rating
Fire	3
Health	
Vapor Irritant	1
Liquid or Solid Irritant	1
Poisons	3
Water Pollution	
Human Toxicity	3
Aquatic Toxicity	1
Aesthetic Effect	3
Reactivity	
Other Chemicals	2
Water	1
Self Reaction	0

11.3 **NFPA Hazard Classification:**

Category	Classification
Health Hazard (Blue)	2
Flammability (Red)	3
Reactivity (Yellow)	0

12. PHYSICAL AND CHEMICAL PROPERTIES

12.1 **Physical State at 15°C and 1 atm:** Liquid
12.2 **Molecular Weight:** 78.11
12.3 **Boiling Point at 1 atm:** 176°F = 80.1°C = 353.3°K
12.4 **Freezing Point:** 42.0°F = 5.5°C = 278.7°K
12.5 **Critical Temperature:** 552.0°F = 288.9°C = 562.1°K
12.6 **Critical Pressure:** 710 psia = 48.3 atm = 4.89 MN/m²
12.7 **Specific Gravity:** 0.879 at 20°C (liquid)
12.8 **Liquid Surface Tension:** 28.9 dynes/cm = 0.0289 N/m at 20°C
12.9 **Liquid Water Interfacial Tension:** 35.0 dynes/cm = 0.035 N/m at 20°C
12.10 **Vapor (Gas) Specific Gravity:** 2.7
12.11 **Ratio of Specific Heats of Vapor (Gas):** 1.081
12.12 **Latent Heat of Vaporization:** 169 Btu/lb = 94.1 cal/g = 3.94 X 10^5 J/kg
12.13 **Heat of Combustion:** −17,460 Btu/lb = −9698 cal/g = −406.0 X 10^5 J/kg
12.14 **Heat of Decomposition:** Not pertinent
12.15 **Heat of Solution:** Not pertinent
12.16 **Heat of Polymerization:** Not pertinent
12.25 **Heat of Fusion:** 30.45 cal/g
12.26 **Limiting Value:** Data not available
12.27 **Reid Vapor Pressure:** 3.22 psia

NOTES

BNZ

BENZENE

12.17 SATURATED LIQUID DENSITY

Temperature (degrees F)	Pounds per cubic foot
55	55.330
60	55.140
65	54.960
70	54.770
75	54.580
80	54.400
85	54.210
90	54.030
95	53.840
100	53.660
105	53.470
110	53.290
115	53.100
120	52.920
125	52.730
130	52.540
135	52.360
140	52.170
145	51.990
150	51.800
155	51.620
160	51.430
165	51.250
170	51.060
175	50.870

12.18 LIQUID HEAT CAPACITY

Temperature (degrees F)	British thermal unit per pound-F
45	.394
50	.396
55	.398
60	.400
65	.403
70	.405
75	.407
80	.409
85	.411
90	.414
95	.416
100	.418

12.19 LIQUID THERMAL CONDUCTIVITY

Temperature (degrees F)	British thermal unit-inch per hour-square foot-F
75	.988
80	.981
85	.975
90	.969
95	.962
100	.956
105	.950
110	.944
115	.937
120	.931
125	.925
130	.919
135	.912
140	.906
145	.900
150	.893
155	.887
160	.881
165	.875
170	.868

12.20 LIQUID VISCOSITY

Temperature (degrees F)	Centipoise
55	.724
60	.693
65	.665
70	.638
75	.612
80	.588
85	.566
90	.544
95	.524
100	.505
105	.487
110	.470
115	.453
120	.438

12.21 SOLUBILITY IN WATER

Temperature (degrees F)	Pounds per 100 pounds of water
77.02	.180

12.22 SATURATED VAPOR PRESSURE

Temperature (degrees F)	Pounds per square inch
50	.881
60	1.171
70	1.535
80	1.989
90	2.547
100	3.227
110	4.049
120	5.033
130	6.201
140	7.577
150	9.187
160	11.060
170	13.220
180	15.700
190	18.520
200	21.740
210	25.360

12.23 SATURATED VAPOR DENSITY

Temperature (degrees F)	Pounds per cubic foot
50	.01258
60	.01639
70	.02109
80	.02681
90	.03371
100	.04196
110	.05172
120	.06317
130	.07652
140	.09194
150	.10960
160	.12980
170	.15270
180	.17850
190	.20750
200	.23970
210	.27560

12.24 IDEAL GAS HEAT CAPACITY

Temperature (degrees F)	British thermal unit per pound-F
0	.204
25	.219
50	.234
75	.248
100	.261
125	.275
150	.288
175	.301
200	.313
225	.325
250	.337
275	.349
300	.360
325	.371
350	.381
375	.392
400	.402
425	.412
450	.421
475	.431
500	.440
525	.449
550	.457
575	.465
600	.474

SIGNATURE PAGE

HEALTH AND SAFETY PLAN
APPROVAL SIGN-OFF

I have read, understood, and agreed with the information set forth in this Health and Safety Plan (and attachments) and discussed in the Personnel Health and Safety Briefing.

Name	Signature	Date

SOIL BORING INVESTIGATION
PERFORMED FOR
SHEFFIELD STEEL CORPORATION
JOLIET, ILLINOIS
JULY 14, 1988

MOSTARDI-PLATT
ASSOCIATES, INC.
Environmental Contract
Engineering Service

MOSTARDI-PLATT ASSOCIATES, INC.
Environmental Contract Engineering Services
1077 Entry Drive
Bensenville, IL 60106
(312) 860-5900

SOIL BORING INVESTIGATION
PERFORMED FOR
SHEFFIELD STEEL CORPORATION
JOLIET, ILLINOIS
JULY 14, 1988

PROJECT NO. 81009

TABLE OF CONTENTS

		Page
1.0	Introduction	1
2.0	Soil Boring Investigation	1
	2.1 Soil Sampling Procedures	1
	2.2 Water Sampling Procedures	2
	2.3 Onsite Physical Analysis	3
	2.4 Laboratory Analysis	3
3.0	Regulatory Review	4
4.0	Discussion of Results	5
5.0	Conclusions	6

APPENDIX

Joliet City Map
Boring Location Plan
Boring Logs

SOIL BORING INVESTIGATION
PERFORMED FOR
SHEFFIELD STEEL CORPORATION
JOLIET, ILLINOIS
JULY 14, 1988

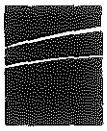
1.0 INTRODUCTION

MOSTARDI-PLATT ASSOCIATES, INC., (MPA), was retained by SHEFFIELD STEEL CORPORATION to obtain soil boring samples and perform laboratory analysis on the samples collected to determine the presence of petroleum hydrocarbons in the form of gasoline and diesel fuels. The soil borings were to be performed in the vicinity of the two existing underground storage tanks (UST's) located on the premises of Sheffield Steel Corporation's Joliet Steel Mill in Joliet, Illinois. The purpose of the soil boring investigation was to obtain information that would assist in evaluating possible contamination of the soils surrounding two old UST's that were removed and replaced in 1986. MPA understands that the UST's were used to store gasoline and diesel fuels for use by Sheffield Steel.

2.0 SOIL BORING INVESTIGATION

2.1 Soil Sampling Procedures

Three soil borings were drilled in the vicinity of the two existing UST's on June 9, 1988 under the supervision of Mr. Lawrence Fieber, Geologist. The borings were drilled to a depth sufficient to penetrate the groundwater surface. Soil samples were collected continuously utilizing hand auger sampling



methods. All samples collected were placed in clean glass containers and immediately sealed with aluminum foil and tightly closed with a plastic screw-on closure. Samples to be analyzed were placed in 40 ml borosilicate septa vials with teflon lined closures and tightly sealed. All collected samples were then stored in ice awaiting transmittal to Arro Laboratories for analytical testing. A field drilling log of soil conditions encountered during drilling procedures was maintained by the supervising geologist. Copies of these drilling logs are appended in this report.

Prior to drilling and sampling procedures all equipment was decontaminated utilizing a soap and water cleanup, acetone rinse, and a distilled water rinse. Decontamination using these methods prevents the possibility of cross contamination from one boring location to another.

2.2 Water Sampling Procedures

Water samples were collected after boring completion by allowing groundwater to flow freely into the open borehole. Groundwater was then sampled using a decontaminated stainless steel bailing apparatus. In this method, the bailing apparatus is lowered into the borehole from the surface allowing groundwater to flow into the sampling bailer where it is held by a check valve until drained into the specified water sample container at the surface. Collected water samples were placed in

clean glass containers, sealed with aluminum foil and tightly closed with a plastic screw-on closure.

2.3 Onsite Physical Analysis

Samples collected during the soil boring investigation were inspected to determine soil type, color, odor, and appearance. Soil samples were classified in accordance with the Unified Soil Classification System as per American Society for Testing and Materials (ASTM) guidelines. The soil description on the drilling logs are in conformance with this classification system. The specific soil conditions encountered at the individual boring locations during the soil investigation are described in the drilling logs appended in this report.

Soils sampled at the property exhibited normal colors, odors, and appearance. No physical evidence of fuel oil or abnormal staining was observed in the soil or groundwater during the investigation.

2.4 Laboratory Analysis

A laboratory analysis was performed on one sample representing soil at the groundwater level from each of the three soil borings. The purpose of the laboratory analysis was to determine the concentrations of common hydrocarbon constituents in the soil. The specific constituents analyzed included benzene, toluene, xylene, and n-hexane. Analysis was performed utilizing gas chromatographic methods.

LABORATORY ANALYSIS RESULTS

Concentrations in Parts Per Million

Boring Number	Sample Number	Benzene Concentration	Toluene Concentration	Xylene Concentration	N-Hexane Concentration
B-1	3	<0.1	<0.5	<0.5	<0.5
B-2	3	<0.1	<0.5	<0.5	<0.5
B-3	3	<0.1	<0.5	<0.5	<0.5

3.0 REGULATORY REVIEW

Mr. Terry Ayers of the Illinois Environmental Protection Agency indicated that his office has established guidelines for requiring remedial action on leaking underground storage tanks containing petroleum hydrocarbons. These guidelines are known as Action Level concentrations and are specified with respect to the common hydrocarbon constituents known as benzene, toluene, xylene, and n-hexane. Illinois Environmental Protection Agency Action Level concentrations of these constituents are listed below:

Constituent	IEPA Action Level Concentration
Benzene	0.1 ppm
Toluene	40.0 ppm
Xylene	88.0 ppm
N-Hexane	88.0 ppm

ppm = Parts Per Million

4.0 DISCUSSION OF RESULTS

The three soil borings taken during this investigation indicate that the water flow direction in the vicinity of the UST's is to the northeast. Laboratory analysis performed on soil samples representative of the groundwater surface indicate that the concentrations encountered have no apparent relationship to the direction of the groundwater flow. One can assume that the highest concentrations of hydrocarbons would be found in soils at the groundwater surface due to the ability of most petroleum hydrocarbons to float on water.

The concentrations of benzene, toluene, xylene, and n-hexane in all soils analyzed were well below the Action Level concentrations set forth by the Illinois Environmental Protection Agency for a petroleum hydrocarbon release.

5.0 CONCLUSIONS

Based on the information obtained from the soil boring investigation and laboratory analysis, the following conclusions are set forth:

1) Groundwater flow in the vicinity of the subject UST's appears to be toward the northeast.

2) Concentrations of benzene, toluene, xylene, and n-hexane are well below the action levels set forth by the Illinois EPA for hydrocarbon releases.

3) The absence of gross physical evidence in the form of abnormal color, odor, and appearance indicates the lack of a significant concentration of hydrocarbons in the soil.

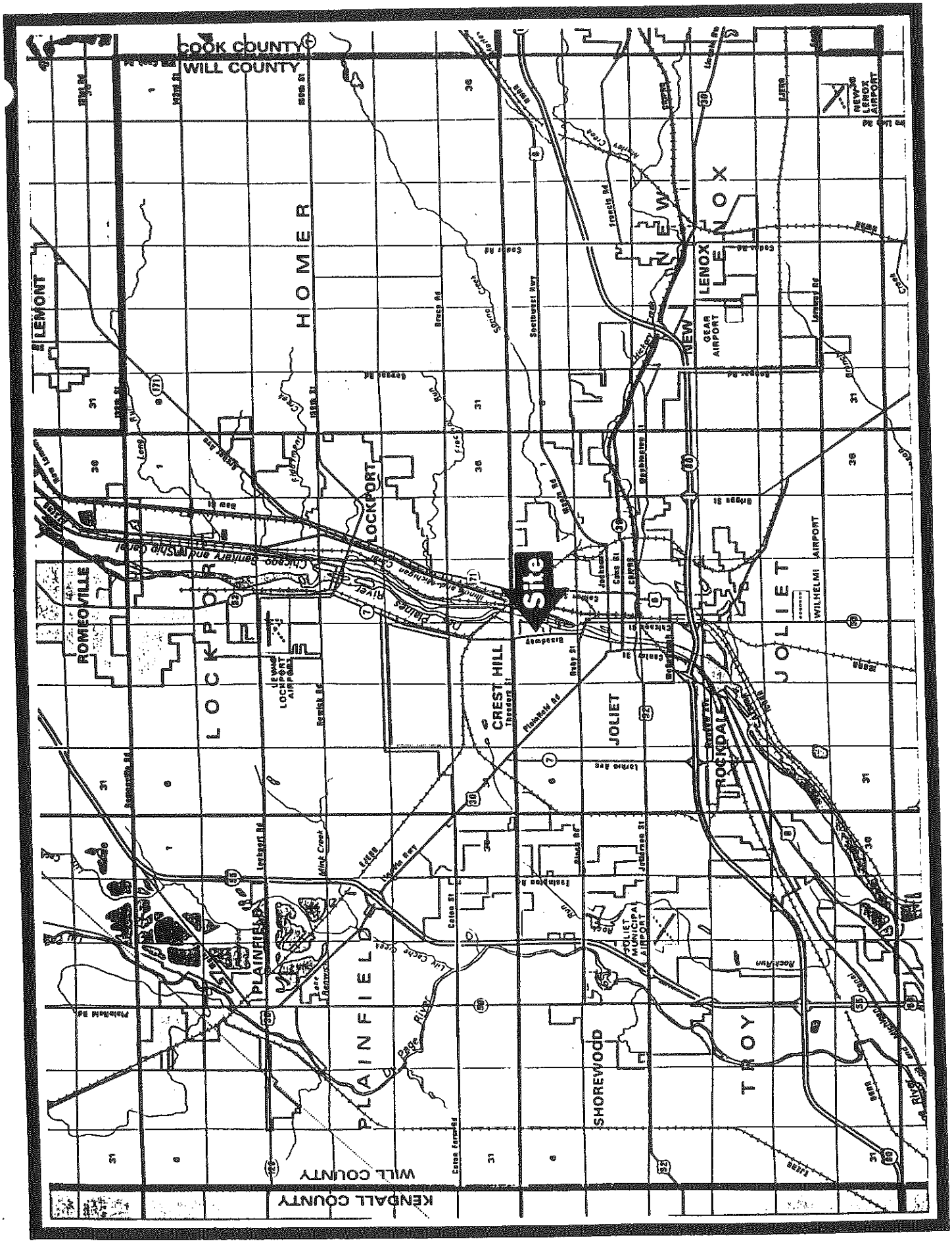
Respectfully submitted,

MOSTARDI-PLATT ASSOCIATES, INC.

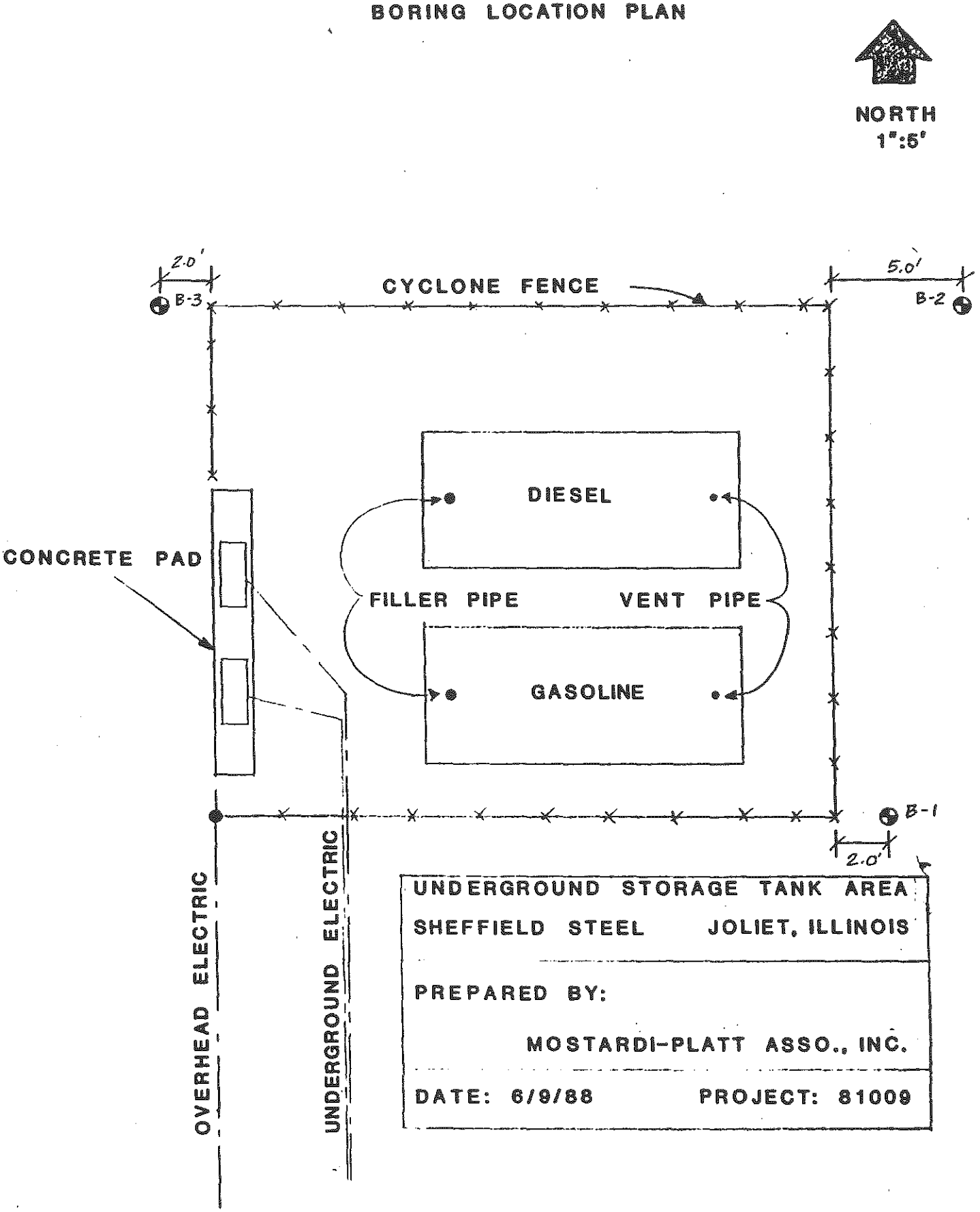
Lawrence L. Fieber
Geologist

APPENDIX

JOLIET CITY MAP



BORING LOCATION PLAN



UNDERGROUND STORAGE TANK AREA
SHEFFIELD STEEL JOLIET, ILLINOIS

PREPARED BY:

MOSTARDI-PLATT ASSO., INC.

DATE: 6/9/88 PROJECT: 81009

Hole No. B-1

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: SHEFFIELD STEEL, JOLIET, IL.
2. LOCATION (Coordinates or Station): 2.0' EAST OF SE/C FENCE
3. DRILLING AGENCY: MOSTARDI-PLATT ASSO., INC
4. HOLE NO. (As shown on drawing title and file number): B-1
5. NAME OF DRILLER: L. FIEBER / C. TREZAK
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: —
8. DEPTH DRILLED INTO ROCK: —
9. TOTAL DEPTH OF HOLE: 5.0'
10. SIZE AND TYPE OF BIT: 2" OD SPLIT SPOON
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): NE/C CONCRETE PUMP PAD = 100.00'
12. MANUFACTURER'S DESIGNATION OF DRILL: ACKER HAND AUGER
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 3; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: 1
15. ELEVATION GROUND WATER: 95.45'
16. DATE HOLE: STARTED 6-9-88; COMPLETED 6-9-88
17. ELEVATION TOP OF HOLE: 99.36'
18. TOTAL CORE RECOVERY FOR BORING: 100 %
19. SIGNATURE OF INSPECTOR: Lawrence Louis Zeller

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (g)
	0.0		FILL: BROWN PEA GRAVEL		1	WATER LEVEL
	1.0					
	2.0					
	3.0		DARK BROWN ORGANIC CLAY (ORIGINAL TOPSOIL)		2	▽ 3 HR. ABANDONED
	4.0					
	5.0	SM	BROWN SILTY SAND (SATURATED)		3	
			END OF BORING @ 5.0'			

SURFACE 1.0 2.0 3.0 4.0 5.0

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

PROJECT 81009 HOLE NO. B-1

Hole No. B-2

DRILLING LOG | DIVISION | INSTALLATION | SHEET 1 OF 1 SHEETS

1. PROJECT: SHEFFIELD STEEL, JOLIET, IL
2. LOCATION (Coordinates or Station): 50' EAST OF NE/C FENCE
3. DRILLING AGENCY: MOSTARDI-PLATT ASSOC. INC.
4. HOLE NO. (As shown on drawing title and file number): B-2
5. NAME OF DRILLER: L. FIEBER / C. TREZAK
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: —
8. DEPTH DRILLED INTO ROCK: —
9. TOTAL DEPTH OF HOLE: 5.0'
10. SIZE AND TYPE OF BIT: 2" OD SPLIT SPOON
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): N/C CONCRETE PUMP PAD = 100.00'
12. MANUFACTURER'S DESIGNATION OF DRILL: ACKER HAND AUGER
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 3; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: 1
15. ELEVATION GROUND WATER: 95.35'
16. DATE HOLE: STARTED 6-9-88; COMPLETED 6-9-88
17. ELEVATION TOP OF HOLE: 99.04
18. TOTAL CORE RECOVERY FOR BORING: 100 %
19. SIGNATURE OF INSPECTOR: Lawrence Kowalski

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	0.0		FILL: MIXED BROWN CLAY AND PEA GRAVEL.		1	WATER LEVEL
	1.0					
	2.0					
	3.0		DARK BROWN ORGANIC CLAY (ORIGINAL TOPSOIL)		2	▽ 2 HR. ABANDONED
	4.0					
	5.0	SM	BROWN SILTY SAND (SATURATED)		3	
			END OF BORING @ 5.0'			

SURFACE 1.0 2.0 3.0 4.0 5.0

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

PROJECT 81009 HOLE NO. B-2

Hole No. B-3

DRILLING LOG	DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS

1. PROJECT: SHEFFIELD STEEL, JOLIET, IL
2. LOCATION (Coordinates or Station): 2.0' WEST OF NW/C FENCE
3. DRILLING AGENCY: MISTARDI-PLATT ASSO., INC.
4. HOLE NO. (As shown on drawing title and file number): B-3
5. NAME OF DRILLER: L. FIEBER/C. TREZAK
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: —
8. DEPTH DRILLED INTO ROCK: —
9. TOTAL DEPTH OF HOLE: 5.5'
10. SIZE AND TYPE OF BIT: 2" OD SPLIT SPOON
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): NE/C CONCRETE PUMP PAD = 100.00
12. MANUFACTURER'S DESIGNATION OF DRILL: ACKER HAND AUGER
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 3; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: /
15. ELEVATION GROUND WATER: 95.58'
16. DATE HOLE: STARTED 6-9-88; COMPLETED 6-9-88
17. ELEVATION TOP OF HOLE: 99.58'
18. TOTAL CORE RECOVERY FOR BORING: 100 %
19. SIGNATURE OF INSPECTOR: Lawrence Louis Gutes

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	SOIL OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	0.0		FILL: CRUSHED WHITE LIMESTONE			WATER LEVEL
	1.0		FILL: MIXED BROWN CLAY, SAND, AND GRAVEL.		1	
	2.0					
	3.0		FILL: DARK BROWN CLAYEY SAND.		2	
	4.0					▼ 1 HR. ABANDONED
	5.0	SM-SP	BROWN SILTY SAND, LITTLE GRAVEL. (SATURATED)		3	
	6.0		END OF BORING @ 5.5'			

SURFACE 1.0 2.0 3.0 4.0 5.0 6.0

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT 81009 HOLE NO. B-3

(TRANSLUCENT)

MOSTARDI-PLATT
ASSOCIATES, INC.

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director 2200 Churchill Road, Springfield, IL 62794-9276

217/782-6761

June 16, 1993

Kenneth Morris
Sheffield Steel
Post Office Box 727
Industry Avenue
Joliet, Illinois 60434

Re: LPC #1970455247 -- Will County
Joliet/Sheffield Steel Corp.
1 Industry Avenue
LUST Incident #921619
LUST/Tech Report File

Dear Mr. Morris:

The Agency has received the Professional Engineer Certification Form dated May 25, 1993 and received June 4, 1993 by the Agency. Based certification by a registered professional engineer, James E. Huff, of Illinois, Kenneth Morris of Sheffield Steel the owner of the Underground Storage Tank and Kenneth Morris of Sheffield Steel the operator of the Underground Storage Tank, further remediation does not appear necessary in regard to the above referenced incident.

It should be noted that during any future excavation and/or construction at the above referenced site, the site safety plan must address worker exposure to the remaining soil contamination.

This letter does not constitute Agency approval of any costs incurred or corrective action activities performed during the remediation of the above referenced incident.

Should you have any questions or require further assistance, do not hesitate to contact Craig Steinheimer of my staff at 217/782-6761.

Sincerely,

Eric E. Portz, P.E., Manager
Engineering Sub-Unit
State Sites Unit
Leaking Underground Storage Tank Section
Division of Remediation Management
Bureau of Land

EEP:CS:ct,1133v,49

cc: James E. Huff, P.E.

State of Illinois
ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

217/782-6761

May 18, 1993

Kenneth Morris
Sheffield Steel
P.O. Box 727, Industry Avenue
Joliet, Illinois 60434

Re: LPC #1970455247 -- Will County
Joliet/Sheffield Steel Corporation
1 Industry Avenue
LUST Incident #921619
LUST FILE

Dear Mr. Morris:

We are in receipt of the 45 Day Report dated November 9, 1992 and received December 7, 1992 by the Agency for the above referenced incident. This information has been reviewed for the purpose of establishing site-specific cleanup objectives due to the presence of a structure.

Your request for site-specific cleanup objectives has been reviewed and approved. The Professional Engineer Certification Form should be submitted at this time. The Agency will formally review the entire project when this form has been submitted.

Should you have any questions or require further assistance, do not hesitate to contact Craig Steinheimer of my staff at 217/782-6761.

Sincerely,

Eric E. Portz, P.E., Manager
Engineering Sub-Unit
State Sites Unit
Leaking Underground Storage Tank Section
Division of Remediation Management
Bureau of Land

EEP:CS:jar/0987v,17

cc: Jim Huff, Huff & Huff, Inc.

B

C